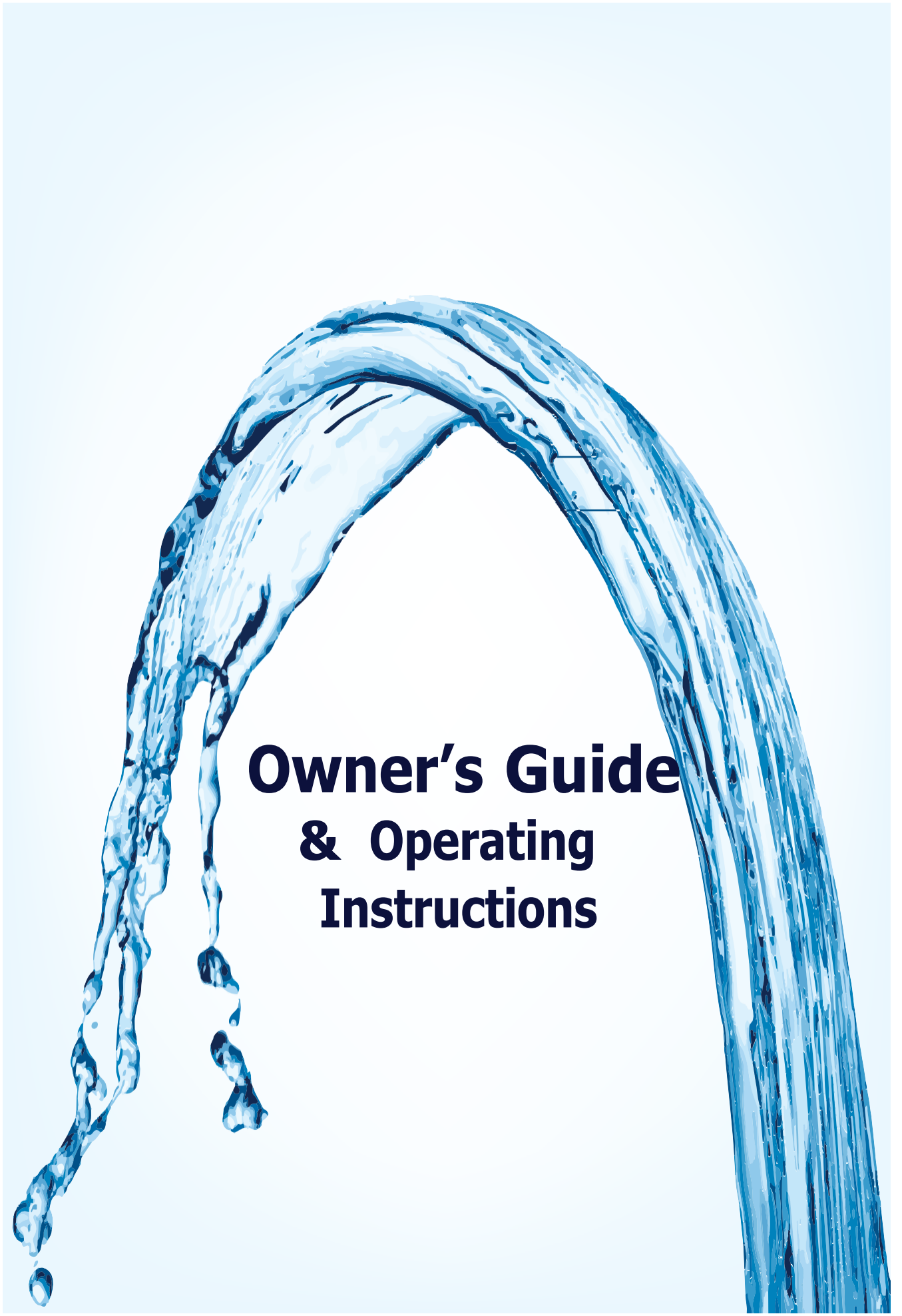

# Owner's Guide & Operating Instructions

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Please record the following information about your spa and store it with your other important documents. Having this information will be beneficial should you need to contact your dealer with questions or file a warranty claim in the future. Most of this information can be found on your original purchase receipt.

Spa Model _____

Spa Serial Number _____ Date of Purchase _____

Dealer Name _____

Approximate Date of Spa Installation _____

**READ, SAVE AND FOLLOW ALL INSTRUCTIONS !**

**!i ATTENTION INSTALLER i! SAVE THESE INSTRUCTIONS**

**GIVE THIS MANUAL TO THE SPA OWNER.**

**IT CONTAINS IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO THE RISK OF FIRE, ELECTRIC SHOCK, AND / OR INJURY TO USERS**

**!i READ AND FOLLOW ALL INSTRUCTIONS i!**

# SAFETY INFORMATION

**DANGER!**

**Risk of Electrocution**

THE SPA MUST BE FILLED WITH WATER BEFORE IT IS CONNECTED TO THE ELECTRICAL SUPPLY.
ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A LICENSED ELECTRICIAN.

A Ground Fault Circuit Interrupter installed in compliance with section 680-42 of the National Electrical Code, ANSI/NFPA 70-1993 is required for user safety and equipment protection. You should inspect the Ground Fault Circuit Interrupter before each use to be sure it is functioning properly, in good condition and that the wiring is connected properly. To ensure the spa functions properly and that your warranty is not compromised by improper installation, a licensed electrician must install all electrical components and make electrical connections. Connect only to a grounded source a minimum of five feet (1.5m ) from any metal surface. Solid copper bonding conductors must be in compliance with local ordinances and located between the ground terminal inside the spa control box and any metal equipment, including pipes, electrical equipment enclosures, and conduit within five feet (1.5m) of the spa. To prevent death or serious injury from electrocution that can occur if an appliance falls into the spa, do not permit any electrical appliances, such as lights, telephones, mP3 players, radios or televisions to be within five feet (1.5m) of the spa unless they were installed by the manufacturer.

- Disconnect the spa from the power supply before draining and servicing components.
- Test the Ground Fault Interrupter(s) before each use.
- Replace damaged wires and cords immediately to reduce the risk of electric shock. Failure to do so may result in death or serious permanent injury by electrocution.
- Do not bury wire without electrical conduit approved for underground use.
- Equipment compartment doors must be properly installed before using the spa.
- Replace components with identical components supplied by the manufacturer.
- Do not operate the audio or television equipment while you are inside the spa.
- Unless it was installed and provided by the manufacturer, audio and video equipment and other electrical appliances should not be used within 5 feet (1.5m) of the spa. Do not connect auxiliary components (i.e. headphones) to the system.
- Do not open the spa control box unless instructed to do so by your dealer.

**DANGER!**

**Risk of Children Drowning**

Extreme caution must be used to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use the spa unless they are supervised at all times. To reduce risk of injury, do not allow children to use this product unless they are closely supervised at all times. To reduce the risk of injury, lower water temperature when spa is used by children. Lower water temperatures are recommended since children are especially sensitive to hot water.

- Make sure child resistant locks on the spa cover are engaged after use. The spa cover that comes with your spa meets the ATSM F1346-91 Standard for Safety Covers. However, use of the cover, locking clips or actual locks will not prevent access to the spa, so children should not be left unattended.
- Children are especially sensitive to hot water. Lower water temperatures are recommended for children. Test the water temperature with a thermometer or your hands to be sure it's comfortable before allowing children to enter the spa.
- Remind children that wet surfaces are slippery. Make sure that children are careful when entering and exiting the spa.
- Check with local authorities regarding fencing requirements for spas in your area.
- Keep children and pets off the spa cover. Most spa covers have a maximum weight load of 20 lbs. They will not support the weight of people or pets. Sitting on the cover may cause the foam inserts to break.
- Children should always be in the company of a responsible adult and should not have unattended access to the spa.

**DANGER!**

Risk of Drowning or Serious Injury from Suction Fittings, Filters and Skimmers

Keep clothing, hair or hanging jewelry away from suction fittings, rotating jets or other moving components. Never use the spa if the filter(s), filter lid(s), or basket(s) are missing. Do not remove basket(s) or filter(s) while the pumps are on. The suction fittings have a specific water flow rating. Replacement suctions fitting must be compatible with the flow rate marked on the original suction fitting. If suction fittings are damaged, contact your local dealer for replacements and discontinue use until they have been installed.

**DANGER!**

**Risk of Hyperthermia**

Prolonged immersion in hot water can result in hyperthermia, a dangerous condition occurring when the internal temperature of the body reaches a level above normal (98.6ºF/37ºC). The symptoms of hyperthermia include unawareness of impending hazard, failure to perceive heat, failure to recognize the need to exit the spa, physical inability to exit the spa, fetal damage in pregnant women, and unconsciousness resulting in a danger of drowning. The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia.

- The Consumer Products Safety Commission has stated that the water in the spa should never exceed 104ºF (40ºC). Water temperatures between 100ºF (38ºC) and 104ºF (40ºC) are considered safe for a healthy adult.
- Lower water temperatures are recommended for extended use (exceeding 10 minutes) and for young children. Extended use at higher temperatures can cause hyperthermia.
- Pregnant or possibly pregnant women should consult a physician before using a spa.
- Pregnant women should reduce the water temperatures to no more than 100ºF (38ºC). Failure to do so may result in permanent injury to your baby.

# SAFETY INFORMATION

## WARNING!

**Adverse Affects with Certain Medical Conditions**

You should consult your physician if you are pregnant or possibly pregnant, obese, have a medical history of heart disease, low or high blood pressure, circulatory problems, infectious diseases, immune deficiencies, infectious diseases, infections skin irritations, or diabetes.

## WARNING!

**Increased Side Effects of Medication**

The use of drugs, alcohol, or medication before or during spa use may lead to unconsciousness with the possibility of drowning. Anyone using medication should consult a physician before using a spa; some medication may cause a user to become drowsy, while other medication may affect the heart rate, blood pressure or circulation. Anyone taking medications which induce drowsiness, such as tranquilizers, antihistamines or anticoagulants should not use a spa.

## WARNING!

**Maintaining Water Chemistry**

To reduce the possibility of contracting a waterborne illness, always maintain water chemistry within the parameters in this manual. Keeping the water clean and sanitized with correct chemical balance helps maintain safe water for bathers and prevents possible damage to the spa components. If other bathers are negatively affected, discontinue use and consult a physician. The recommended levels for your spa are:

| | |
|---|---|
| Free Available Chlorine (FAC): | 3.0 to 5.0 ppm Free |
| Available Bromine (FAB): | 2.0 to 4.0 ppm Total |
| Alkalinity | 80 to 120 ppm |
| Water pH | 7.2 to 7.8 |
| Calcium Hardness | 150 to 250 ppm |

- Cynuric acid levels should never exceed 100 ppm
- Always shower before and after using a spa.
- Refer to Water Chemistry & Maintenance section for water and spa care information and instructions.
- When adding chemicals, turn the primary pump on for at least 15-30 minutes after adding any spa chemicals.
- Replace or clean the filter cartridges regularly to remove debris and buildup which may affect the performance of jets, limit the water flow, or trip the high limit thermostat which will automatically turn off the spa to prevent further damage to the spa.
- Stay out of the spa if you have open wounds or an infectious disease.

## IMPORTANT SAFETY REMINDERS

- Wet surfaces can be slippery. To reduce the risk of injury, exercise care when entering and exiting the spa. Give children instructions about how to safely enter and exit the spa.
- Remove all jewelry and put long hair in a bathing cap or hair tie before you enter the spa.
- Measure the water temperature with an accurate thermometer before entering the spa to verify the topside control displays the correct temperature. The tolerance of regulating devices may vary as much as +/- 5ºF (2ºC).
- Temperature should never exceed 104ºF (40ºC)
- Test the water with your hand to be sure it's comfortable before entering the spa.
- Keep sharp objects away from the spa area.
- Do not use alcohol or drugs before or during spa use. Drink plenty of water to stay well hydrated. If you have had diarrhea within the last 14 days you should not enter the spa.
- If you are going to be in the spa for more than 10 minutes, reduce the temperature of the spa to 100ºF (40ºC) or lower.
- Do not use the spa immediately after strenuous exercise.
- It is not recommended to use the spa for more than 30 minutes at any one time without getting out and allowing your body temperature to cool.
- Never use your spa when you are alone.
- Consult a physician if you are pregnant, have a medical condition or are taking medication before using a spa.
- After adding chemicals leave the cover partially open for 15-30 minutes to allow chemical vapor to escape. Never leave the spa unattended if the cover is not locked securely in place whether it is empty or filled with water. Exposure to sunlight, rain, snow and high temperatures may cause permanent damage to the spa.
- Brush heavy snow loads off the cover with a soft brush. Spa covers are not intended to hold weight loads in excess of 20 pounds.
- Reinforce your cover with wind straps during periods of high wind. The tie downs sewn on the cover will not hold your cover in place if wind speeds are excessive.
- Use only approved and recommended accessories, chemicals and cleaners.
- Never allow children or pets to sit or stand on the spa cover.
- Always lift or carry the cover by using the handles, not the skirt or tie downs.

# SITE PREPARATION, DELIVERY & INSTALLATION RECOMMENDATIONS

## CHOOSING A LOCATION

Choosing the right location for your spa requires careful consideration of aesthetics and convenience in addition to the care and maintenance required over the life of your spa. Planning and preparation are critical, but following a few basic guidelines will ensure a lifetime of enjoyment.

## SITE SELECTION CONSIDERATIONS

- Make sure the installation meets your local codes, covenants and restrictions. Many communities require the same security precautions for spa installations as swimming pools, such as fences with locking gates.
- Make sure the location is free of obstacles that may interfere with delivery and installation. The overall dimensions are an important consideration when planning for delivery & installation. A clear pathway from the curb to the installation site makes delivery a breeze. The pathway should be free of obstruction from things like walls, fences, tree limbs, heat pumps, and power lines. Check to be sure gate openings are wide enough for the spa to pass through without damaging the spa.
- Normal use of your spa will mean lots of splashing. Choose a location where water will drain away from the base of the spa rather than pooling around the spa. Close proximity to a water hose will allow you to easily top off the spa after each use.
- Consider the proximity to the doors of the house, especially in cold weather. Be sure there is a pathway to the spa that can be easily maintained in inclement weather.
- Keep your spa away from landscaping sprinklers, roof overhangs, guttering, and power lines. Adequate drainage that prevents standing water near the foundation of the spa is critical.
- But you should also consider the negative effects of wind, exposure to the sun and the location of trees to minimize the effects of falling debris, excessive sunlight and shade.
- Choose a location that allows easy access for maintenance and repairs. You should leave 24" of clearance on the side of the spa with the electronics and 18" of clearance on all other sides to allow easy access for maintenance and repairs. Some periodic maintenance steps require access to the electrical equipment area.

## MANUFACTURER'S RECOMMENDED GENERAL INSTALLATION INSTRUCTIONS

It's very important to follow the manufacturer's guidelines for site preparation, installation and leveling of your new spa. Failure to follow these instructions may result in structural damage to the spa that is not covered under your warranty.

## SITE PREPARATION FOR OUTDOOR SPAS

- The manufacturer recommends that you hire a qualified, licensed professional to install a level, concrete pad reinforced with steel bars that will adequately support the weight of the spa when it's filled with water and all of the bathers.
- Before you begin, contact your local gas, electric, water and cable companies to be sure there are no underground lines in the site you have chosen.
- For best results, your spa should be placed on a level concrete pad between 6" (15 cm) and 8" (20 cm) thick that's at least 8" (20 cm) wider and longer than the overall dimension of the spa.
- Finish your concrete pad with a course broom to ensure it is slip resistant.
- If you live in a climate with freeze/thaw zones or prone to ground shift because of the kind of dirt or low/high water tables, we recommend installing poured concrete footings that extend below the freeze line or water table to prevent the possibility of shifting.
- Make sure the site is away from areas that are prone to flooding or standing water and there is adequate drainage away from the spa.
- Never backfill the sides of the spa with dirt. If necessary, you should incorporate a retaining wall into the site design that will help ensure the cabinet and electrical components remain dry at all times.
- If your site plan includes decking to give the appearance the spa is recessed, you should choose slip resistant materials for everyone's safety. Deck design should include removable or locking, hinged panels to allow easy access on all four sides for maintenance and service. *Making the spa accessible for service is not covered under the warranty.*

## SITE PREPARATION FOR INDOOR SPAS

- If you are placing your spa indoors you should plan well in advance to prevent the delivery and installation issues that may occur when attempting to get the spa indoors.
- A licensed contractor should confirm the load bearing capacity of the floor is adequate, make necessary modifications like widening the entry point if necessary, installing a floor drain to eliminate standing water, and adding a convenient water supply so the water level can be properly maintained.
- Floor coverings should be slip resistant with some ability to grip when the floor is wet.
- The location and floor covering must be able to handle draining all of the water which is part of routine maintenance.
- You should consider installing a ventilation system. If floor coverings trap water or the drainage is inadequate, wood, paper, and drywall may get damp creating mold and mildew. Some spa chemicals may have an adverse reaction to some household metals.
- Again, adequate load bearing capacity for the weight of the spa when filled with water and bathers is vital.

## PREPARING FOR THE DELIVERY AND OFF LOADING YOUR SPA

- It is important to speak with your sales representative about what to expect at the time of delivery well in advance of delivery so you're prepared on the day of delivery. Failing to adequately prepare in advance can delay delivery. Discuss potential delivery obstacles like steps, fences and small gate openings so the delivery agent is properly equipped to place your spa without delay.
- If your spa is being delivered and you're moving it to the installation site, it will arrive in a 53' common carrier closed box trailer. The carrier is responsible only for delivery to your curb along a public road to an address that is accessible not for removal or placement of your spa. You will need several people to help remove the spa from the truck on the day of delivery.

## SITE PREPARATION, DELIVERY & INSTALLATION RECOMMENDATIONS

- If placing your spa requires a crane, choose a reputable crane service with spa experience. Spreaders are required with swim spas and should be used on portable spas. If the spa is not properly stabilized or the straps are too tight or improperly placed, the spa components and structure may be compromised or broken, even if there is no visible damage at the time. Crane services who are familiar with spa placement know how to properly place spreaders and straps, ensuring the frame is adequately supported.

NEVER FLIP THE SPA ON ITS TOP.
NEVER FLIP THE SPA END OVER END.

To prevent damage when moving your spa, the side where equipment is housed must face down at all times.

**The manufacturer's warranty does not cover damage that is the result of improper removal or installation of the spa.**

### LEVELING YOUR SPA

- After your spa is positioned in place make sure it is completely level before filling with water.
- NEVER use shims. Shims create pressure points that can damage the spa.

## ELECTRICAL REQUIREMENTS AND RECOMMENDATIONS FOR PLUG-IN SPAS INSTALLED IN THE UNITED STATES

*Operating on 60 Hz, alternating current at 120V*

All electrical connections must be performed by a qualified licensed electrician in accordance with the National Electric Code (NEC) following state and local electrical codes in effect at the time of the installation.

| Electrical Requirements | |
|---|---|
| Voltage | 120 |
| Breaker | Dedicated 20 Amp |
| Poles | 2 |
| Wires | 3 |

### DANGER! Risk of Electric Shock

Connecting the spa to an improperly wired circuit will eliminate many of the spa's built in safety features which may result in fire, electrocution, or other risk of injury. Damage to the spa that is the result of improper electrical installation is not covered under the manufacturer's warranty and will terminate all listings from independent listing agencies.

- An appropriately rated GFCI cord is attached and shipped from the manufacturer inside the cabinet panel under the top side controls.
- Electrical appliances including audio and video equipment should not be used within 5 feet (1.5m) of the spa.
- Never touch or come into contact with the electrical cord or any electrical accessory when your body is wet.
- Do not operate the audio or television equipment while you are inside the spa.
- Test the GFCI on the cord before each use.
- Never alter the plug.
- Do not bury the cord.
- Replace damaged cords immediately to reduce the risk of electric shock. Failure to do so may result in serious permanent injury or death by electrocution.
- Keep the cord away from lawn mowers, weed eaters and other equipment that may damage the cord.

***THE SPA MUST BE FILLED WITH WATER BEFORE IT IS PLUGGED IN.***

Plugging in the spa automatically activates critical components such as the pumps, controls and the heating. Supplying power to the components before the spa is filled with water damages the components instantly. Damage that occurs to the spa because it was plugged in before it was filled with water is not covered by the manufacturer's warranty.

- The power supplied to your spa must be a dedicated circuit with no other appliances, lighting, or other electronic components shared by the circuit.
- This spa must be plugged directly into the outlet. Do not use an extension cord or surge protector. Low voltage may cause damage that is not covered under the manufacturer's warranty.
- Do not unplug this spa under normal conditions. Your spa is engineered for optimal energy efficiency and is equipped to automatically perform routine maintenance cycles that require a permanent connection to the power supply.

***THE SPA MUST BE UNPLUGGED BEFORE DRAINING, PERFORMING MAINTENANCE OR SERVICING.***

- Do not open the spa control box without the assistance of your dealer.
- To access the spa controls, remove the cabinet panel and store it safely. Do not replace the access panel until the spa is filled with water and you are sure it is operating properly.
- Never use the spa with the equipment compartment door removed. Equipment compartment doors and cabinet panels must be properly installed before using the spa.
- Replace components with components identical to those supplied by the manufacturer.

# ELECTRICAL REQUIREMENTS AND RECOMMENDATIONS FOR SPAS INSTALLED IN THE UNITED STATES

*Operating on 60 Hz, alternating current at 240V*

**Never turN the GFCI ON beFOre FIlIING yOur spa wIth water!**
**aIways turN the GFCI OFF beFOre servICING Or draINING yOur spa!**

## DANGER! Risk of Electrocution

All electrical connections must be performed by a qualified licensed electrician in accordance with the National Electric Code (NEC) following state and local electrical codes in effect at the time of the installation.

- Connecting the spa to an improperly wired circuit will eliminate many of the spa's built in safety features which may result in fire, electrocution, or other risk of injury. Damages to the spa which are the result of improper wiring are not covered under the manufacturer's warranty and will terminate all listings from independent listing agencies.
- The electrical supply for your spa must be housed in a weatherproof junction box and include a suitably rated switch and Ground Fault Circuit Interrupter between the main service entrance and the spa to open all ungrounded supply conductors in compliance with Section 422-20 of the National Electrical Code/USA, ANSI/NFPA/70 and in compliance with independent listing agencies. This might be used as a shut off switch, and must be installed so that it is accessible to the spa occupants, but not within 5 feet (1.5m) of the spa.
- The wiring specifications in this manual are for standard installations where the main power supply is within 40 feet (12m) of the spa. If the main power supply is more than 40 feet (12m) away, the electrician must make appropriate modifications.
- The electrical instructions and diagrams contained in this manual and inside the spa control box are included as a guideline for the licensed electrician installing the electrical connections and vary by model. Please refer to the wiring diagram inside the spa control box for model specific connection instructions. All wiring connections must be watertight.
- All connections must be made using copper conductors only. Do not use aluminum wire. Connection wires, circuit breakers, and/or fuses, must all be sized to accommodate the Total Ampere load.
- Never turn power on to the spa when it is not filled with water. DO NOT connect power to the empty spa. When power is supplied to the spa, it automatically activates critical components within the spa, such as the pumps, controls and the heating. If power is supplied to the components before it is filled with water, the components may be damaged instantly. Damage that occurs to the spa because power was supplied before it is filled with water is not covered by the manufacturer's warranty.
- Prior to performing any service, turn OFF all primary electrical equipment at the main circuit breaker or disconnect panel.
- Your spa must be permanently connected (hard wired) to a power supply that is protected by a Ground Fault Circuit Interrupter (GFCI). Power supplied to your spa must be a dedicated circuit with no other appliances, lighting, or other electronic components powered by the circuit.
- Do not permit any electrical appliances like lights, telephones, mP3 players, radios or televisions within five feet (1.5m) of the spa unless they were built in by the manufacturer. Failure to maintain a safe distance may result in death or serious injury from electrocution if the appliance should fall into the spa.
- Do not use head phones while using the spa
- All metal components or accessories that are permanently installed, like handrails, ladders, drains and hardware that are within 5 feet (1.5 m) of the spa must be bonded to the equipment grounding bus with copper conductors no smaller than No. 6 AWG.

## WIRING REQUIREMENTS FOR 240V SPAS

- Correct wiring of the electrical service box, GFCI box and pack terminal block is required. Your spa requires a 4-wire, 40, 50 or 60 amp service (depending on the spa model), 240 volt sub feed in non-metallic pipe to the spa equipment compartment.
- The minimum wire size for 40, 50 and 60 amp systems is # 6/3 c/w ground (6 gauge/4 conductor) if the main power supply is within 40 feet (12m) of the spa. If the main power supply is not within 40 feet (12m), your electrician should make the appropriate modifications.
- The spa must have dedicated 240V service from the main power supply. Do not attempt to share service with other appliances. Use only a class 'A' double-pole Ground Fault Circuit Interrupter (GFCI).
- To access the spa controls, remove the cabinet panel and store it safely. Do not replace the access panel until the spa is filled with water and you are sure it is operating properly.

## 240V ELECTRICAL CONNECTIONS

Installation of the GFCI and circuit breaker, including ampere sizing and selection of conductor size and type must be performed by a qualified, licensed electrician in accordance with the National Electrical Code, all Federal, State and Local codes, and all regulations in effect at the time of installation. All wiring schematics are provided as a reference only and are intended for use only by qualified, licensed electricians.

## MODEL SPECIFIC HARD WIRING INSTRUCTIONS ARE LOCATED INSIDE THE SPA CONTROL BOX.

Hard wire the spa controls following the model specific diagram inside spa control box lid. In most models, the spa controls are inside the access panel underneath the spa's top side control pad.

# GFCI INSTALLATION ON 220V SPAS

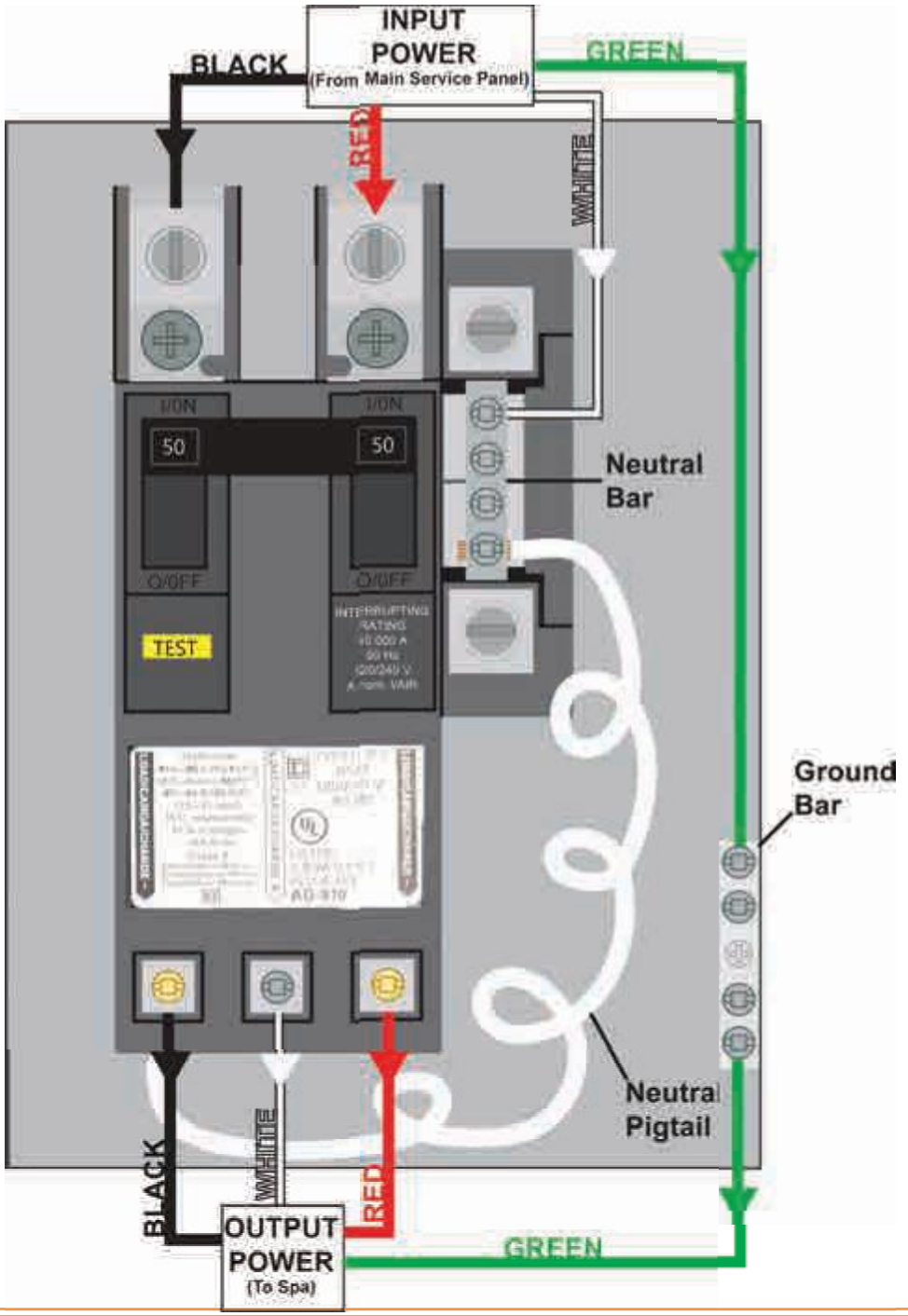
**The primary cause of component failure in spas is an improperly installed Ground Fault Circuit Interrupter.**

For the health and safety of your family and your spa, it is IMPERATIVE that all of your wiring and electrical connections be installed correctly by a qualified licensed electrician and that a properly rated Ground Fault Circuit Interrupter is installed between your main power supply and your spa. If your spa is not connected properly, the safety features built in to prevent the risk of death by electrocution or fire may be disabled and the electronic components in your spa may be damaged beyond repair. Damage to your spa that occurs because it wasn't connected properly is not covered under your warranty.

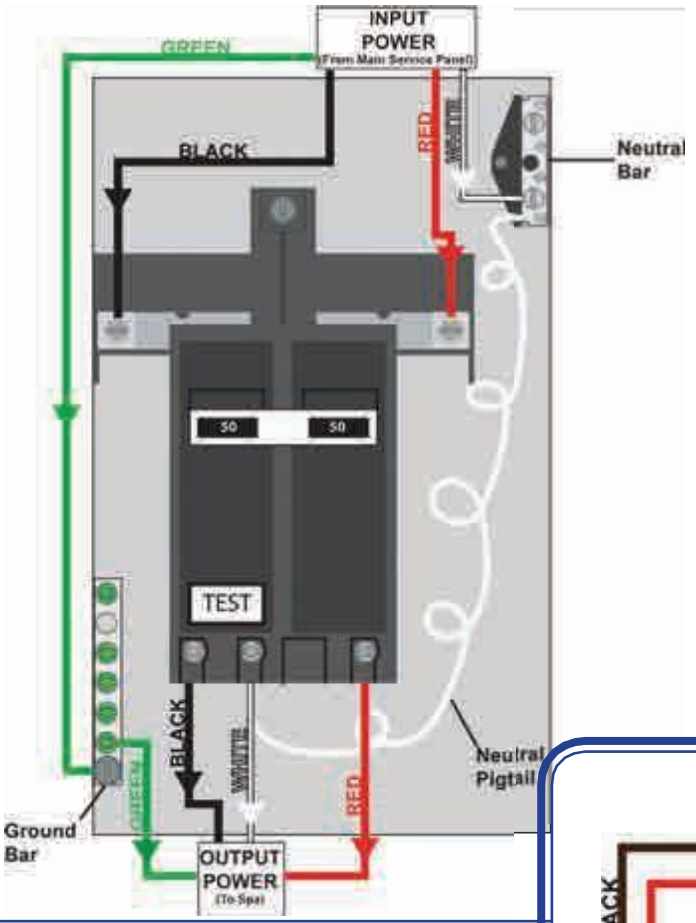
GFCIs are readily available at home improvement, hardware, and electrical supply stores nationwide and can also be purchased online. The wiring diagrams from some of the most commonly purchased brands illustrate that the input and output locations along with the locations of grounding lugs, neutral blocks and wiring connections vary by manufacturer.

**ALWAYS FOLLOW THE INSTALLATION INSTRUCTIONS THAT ARE INCLUDED WITH THE GFCI YOU PURCHASE.**

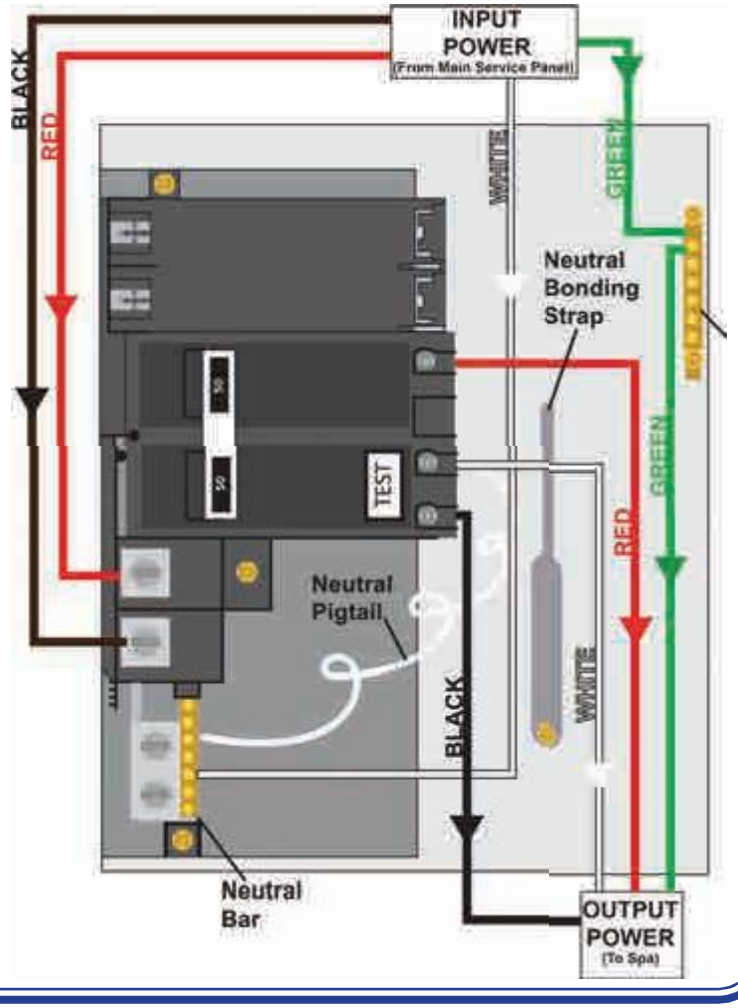
## Midwest Brand 50 AMP GFCI



## Eaton Brand 50 AMP GFCI




## Square D 50 AMP GFCI



# ELECTRICAL REQUIREMENTS AND RECOMMENDATIONS FOR SPAS INSTALLED OUTSIDE THE UNITED STATES

*Operating on 50 Hz, alternating current at 230V*

**A QUALIFIED, LICENSED ELECTRICIAN MUST MAKE ALL ELECTRICAL CONNECTIONS IN COMPLIANCE WITH ALL COUNTRY, STATE, PROVINCE, CITY, COUNTY, BRANCH AND LOCAL ELECTRICAL CODES, STANDARDS, REGULATIONS, REQUIREMENTS, & NORMS IN FORCE AT THE TIME OF INSTALLATION.**

## DANGER!

Risk of Electric Shock

- Connecting the spa to an improperly wired circuit may eliminate many of the spa's built-in safety features which may result in fire, electrocution or other risks of injury. Damage to the spa that is the result of improper electrical installation is not covered under the manufacturer's warranty and may terminate all listings from independent listing agencies.
- Your spa must be permanently connected to a sufficiently rated main circuit breaker and protected against earth faults by a Residual Current Device (RCD / GFCI) with residual-current sensitivity not exceeding 30 mA to prevent the danger of electric shock caused by damaged or waterlogged cables and connections. Install a new RCD / GFCI if the condition of an existing RCD / GFCI is unknown.
- In some instances, an appropriately rated Rotary Isolator Switch must be installed within 4.5 meters of the spa in a location that is easily accessible and in plain sight but at least 2 meters from the spa that is out of reach to bathers inside. This switch isolates the spa the main service panel, quickly and safely disconnecting the power supply for service and in the event of an emergency.
- You may be required to install an arc fault detection device (AFDD) to mitigate the risk of fire in the event of arc fault currents.

## WARNING

It is the responsibility of the spa owner to ensure a qualified electrician makes all electrical connections with equipment that is suitable for the particular point of installation using all necessary measures to protect against electric shock. Instructions in this manual and diagrams on the equipment are a guideline for the qualified, certified electrician making the electrical connections.

- Use copper conductors only. Do not use aluminium wire.
- Circuit breaker amperage varies by model and installation area. The total amperage load may be reduced on models that do not have optional electronic equipment installed. The wire sizes in this manual are recommendations that do not account for the distance between the installation site and the main power supply.
- All wiring connections must be watertight. Waterproof gland packs should be used to prevent ingress of water on all outdoor electrical connections.
- Improper electrical connections or incorrectly sized wire is hazardous and may also cause fuses to blow repeatedly or permanently damage the components voiding your warranty.
- This spa is designed to be permanently connected to a dedicated circuit breaker sufficiently rated for the maximum amperage pull of the hot tub when the pumps are turned on. A dedicated breaker is not shared with any other electronic devices such as lighting, appliances or garage circuits. Connecting to a shared circuit causes overloading, resulting in nuisance tripping and damage not covered under the manufacturer's warranty.
- Do not connect to a circuit that is regularly switched on and off by your utility service or to an external switching device, such as a timer.
- Do not connect through an extension cord or surge protector.
- Protect outdoor cable from damage with either Steel Wired Armoured (SWA) cable or approved non-conductive conduit.
- To ensure the cable reaches the controls when the spa is placed, your electrician should include at least 4-meters of excess cable.
- For your safety, the main circuit breaker, RCD / GFCI and Rotary Isolator Switch remain off until connections to the spa are complete. Until the spa arrives, store the cable beside the installation site, not buried underneath it, with screw terminals affixed to cable ends to prevent risks of electrocution and property damage which may occur if the power supply is accidentally turned on.
- Never touch or come into contact the electrical cords, appliances or accessories when your body is wet.
- Do not operate audio or television equipment while you are inside the spa.
- This Spa must be disconnected from the power supply before draining, performing maintenance or servicing.
- Never attempt to service parts inside the spa control box without assistance from your dealer.
- When you are sure the spa is operating properly replace the equipment compartment doors and cabinet panels. Never enter the spa until the equipment compartment cover and cabinet panels are not securely in place.

***This Spa must be filled with water before power is supplied.***

Critical components are activated automatically when power is supplied. If power is supplied when the spa is empty those components may be damaged instantly and permanently.

***This Spa must disconnected from the power supply before draining or performing maintenance & service.***

- To access the spa controls, remove the cabinet panel and store it safely. Do not replace the access panel until the spa is filled with water and you are sure it is operating properly.
- Never use the spa with the equipment compartment door removed. Equipment compartment doors must be properly installed before using the spa.
- Replace components with identical components supplied by the manufacturer.

# ELECTRICAL REQUIREMENTS AND RECOMMENDATIONS FOR SPAS INSTALLED OUTSIDE THE UNITED STATES

*Operating on 50 Hz, alternating current at 230V*

**Please refer to the wiring diagram on the electronic equipment lid for model specific connection instructions. Connecting wires, circuit breakers, and fuses must all be sized to accommodate the Total Ampere Load specified on the equipment label.**

*Wire sizes may vary depending upon variables at the installation site that have not been factored into the recommendations in this manual. The certified electrician doing the installation should calculate the correct wire sizes taking every precaution to protect the users and equipment from electric shock in accordance with codes and regulations in force at the time of installation.*

| TN and TT GS-500-Z Specifications for Single Pump Spas | | | |
|---|---|---|---|
| Service | Single Phase Service | Single Phase Service | Three *(*Poly)* Phase Service |
| Rating | 1 x 16 Amp | 1 x 32 Amp | 3 x 16 Amp |
| *Maximum Breaker Rating | 20 Amp | 40 Amp | 60 Amp |
| Wiring | Three - 1 Live, 1 Neutral, 1 Protective Earth | Three - 1 Live, 1 Neutral, 1 Protective Earth | **Five - 3 Live, 1 Neutral, 1 Protective Earth |
| RCD / GFCI to Supply Wire Size | 6mm Solid Copper | 6mm Solid Copper | 6mm Solid copper |

| TN and TT BP-601 Specifications for Multiple Pump Spas | | | |
|---|---|---|---|
| Service | Single Phase Service | Single Phase Service | Three *(*Poly)* Phase Service |
| Rating | 1 x 16 Amp | 1 x 32 Amp | 3 x 16 Amp |
| *Maximum Breaker Rating | 20 Amp | 40 Amp | 60 Amp |
| Wiring | Three - 1 Live, 1 Neutral, 1 Protective Earth | Three - 1 Live, 1 Neutral, 1 Protective Earth | **Five - 3 Live, 1 Neutral, 1 Protective Earth |
| RCD / GFCI to Supply Wire Size | 6 mm Solid Copper | 6 mm Solid Copper | 6mm Solid Copper |

** To protect the users, service providers and equipment, the certified electrician making connections must install a sufficiently rated main circuit breaker that complies with all requirements in effect for the particular installation site at the time of installation including load buffers, which have not been factored into the breaker size recommendations included in this manual.*

***Polyphase system: 230V dual phase supply to the spa from three phase service requiring all electrical phases share one protective earth.*

## ADDITIONAL INSTRUCTIONS FOR PLUG-IN SPAS

***This Spa must be filled with water before it is plugged in & unplugged before draining or performing maintenance & service.***

Plugging in the spa automatically activates critical components such as the pumps, controls and the heating. Supplying power to the components before the spa is filled with water may cause instant and permanent damage not covered by the manufacturer's warranty.

- For your safety, your electrician should install a single plug dedicated outlet in a waterproof cover within 2.5 meters of the installation site.
- Test the RCD / GFCI on the cord before each use.
- Never alter the plug.
- Do not bury the cord. Replace damaged cord immediately to reduce the risk of electric shock. Failure to do so may result in serious permanent injury or death by electrocution.
- Keep the cord away from lawn mowers, weed eaters and other equipment that may damage the cord. This spa must be plugged directly into the outlet. Do not use an extension cord or surge protector. Low voltage may cause damage that is not covered under the manufacturer's warranty.
- *Do not unplug under normal conditions*. This spa automatically performs routine maintenance cycles that require permanent connection to the power supply.

| Specifications for Plug-In Spas | |
|---|---|
| Service | Single Phase - plugs into standard household outdoor outlet |
| Rating | 1 x 16 Amp |
| *Maximum Breaker Rating | 20 Amp |
| RCD / GFCI to Supply Wire Size | N/A - 3 meter RCD protected cord attached |

** To protect the users, service providers and equipment, the certified electrician making connections must install a sufficiently rated main circuit breaker that complies with all requirements in effect for the particular installation site at the time of installation including load buffers, which have not been factored into the breaker size recommendations included in this manual.*

# GETTING TO KNOW YOUR SPA

## THE ELECTRONIC COMPONENTS

The Spa Pack is the computer that coordinates the mechanical and electronic functions. In addition to responding to user commands when a button is pressed on the topside control, it also performs many of the maintenance and safety features automatically. For example, the pack automatically turns the pump on when it's time for the filtration cycle to begin and turns it off when the cycle is complete.

*Diagnostic Testing*

*The spa pack is programmed to periodically run a series of diagnostic tests to ensure your spa is operating efficiently. If a problem is detected, an error message appears on the topside control to notify you the spa requires your attention. In many cases error messages can be resolved with a system reset, turning the GFCI "OFF" for 30 minutes and turning it back "ON." If an error message is still displayed after performing a system reset, refer to the troubleshooting guide in this manual or call your dealer for assistance. ALWAYS turn the GFCI "off" before performing service or repairs.*

The Topside Control relays user commands to the spa pack, allowing you to customize your water temperature, jet operation, lighting features, and energy saving functions. In addition to relaying your commands, it also relays diagnostic messages if a problem is detected.

*Primary and User Controlled Functions*

*Because the spa pack prioritizes your safety and maintenance functions, buttons on the topside controls that interrupt those functions are disabled until the cycles are complete. For example, when the water temperature falls, a heat cycle begins automatically circulating the water on low speed until the correct temperature is reached. While the water is heating, pressing the "pump" button will not change the circulation speed or turn the pump off. User functions are restored when the maintenance cycle ends.*

The Therapy Pump(s) push water through the internal plumbing and jets. The number of pumps and their speed varies by spa model. In models that *are not equipped with a circulation pump*, pump one automatically turns on and runs on low speed during heating, filtration and maintenance cycles.

The Circulation Pump *(if equipped)* circulates the water continuously until the temperature is 1° above the programmed temperature setting. When the water is at the correct temperature, the circulation pump will automatically turn off and back on to every 30 minutes circulate the water for at least 1 minute to check the temperature and continue circulating until it reaches the set temperature if necessary. Your water temperature may not fall enough for your circulation pump to run in warm climates and on hot summer days. You can increase circulation by reducing your temperature setting and increasing filtration cycles.

*Water Temperature Setting in Warm Weather*

*It's a good idea to reduce your water temperature setting in warm climates. When the ambient temperature soars to 95°F (35°C) and higher, the heat retained to maximize energy efficiency during cold weather can transfer to the water, making it warmer than the temperature you set. Reducing your temperature setting not only prevents overheating and nuisance error codes, but it also conserves energy and reduces operating costs. If you want to reduce the water temperature quickly, remove the cover for a short time or drain some of the warm water and replace it with cold water.*

## THE PLUMBING COMPONENTS

The "T Stems" (Slice or Gate Valves) are installed in the plumbing lines near the electronic components so service can be performed without draining the spa. Pushing the "T" stem down creates a seal in the plumbing line between the "T" stems. When service is complete, the "T" stems are raised and locked in the up position so water flow can resume. Slice valves must be locked in the "up" position before power is applied to prevent damage to your spa. Each time you change the water make sure the locks are in good condition; if the locks won't hold the "T" stem in "up," replace them immediately. Discontinue use of the spa until the replacement locks have been installed.

The Plumbing Unions connect the plumbing lines to the components. The primary cause of leaks inside the cabinet is plumbing unions that need to be tightened or seals that need to be reseated or replaced. Unions can become loose in transit and when the seasons change. During the initial installation and each time you drain your spa, you should hand tighten all plumbing unions. To prevent over tightening, never use tools to tighten plumbing unions.

Air in the Plumbing Lines and Pumps

If you hear a "humming" sound, if the pumps surge or if the jets don't work when you press the button, it's very likely you have an airlock in that pump. To release the airlock, slowly loosen the union connected to the pump and tighten when water begins trickling from the union. The pumps are designed to pump water, not air. Air trapped in the pump or the plumbing lines prevents circulation which can damage the pump(s) instantly. Following the manufacturer's instructions when you fill your spa and soaking new filters for 30 minutes before installing them will help prevent air locks. . Never allow a pump that is not primed to run for more than 2 minutes.

# GETTING TO KNOW YOUR SPA

The Filter Assembly consists of the filter, the filter basket or grille, and the filter cover. The filter basket or grille catches large debris, the filter removes fine particulates. If any part of the filter assembly is obstructed or if the filters are dirty water flow is restricted, which can damage the spa. It's important to remove debris and clean or replace the filters regularly. Using the spa without the filter assembly in place is a drowning hazard. If any part of the filter assembly is damaged, please call your local dealer for replacement parts and discontinue use until they're installed. Before filling the spa or changing the filter, manually power the GFCI "OFF." The manufacturer recommends that you replace the filter every three months. Soak new filters in water for 30 minutes before installing to prevent air in the plumbing lines.

The Suction Drain Covers in the footwell cover the suction lines that prevent debris from entering the plumbing lines and reducing the risk of drowning. Keep hair, clothing, and children away from the suction drains when using the spa. Debris over the suction drain covers obstructs water flow, which can damage your spa. It is essential to check them on a regular basis to make sure they are in good condition. Contact your dealer for replacements if they are damaged and do not use your spa until they have been installed.

## THE AIR, DIVERTER & WATERFALL VALVES

*The appearance of air, water, and diverter will vary depending upon the model purchased.*

The Air Valve is the small dial on the acrylic surface that regulates air injection in the jets. Rotating it in one direction opens the air valve, increasing the airflow to maximize "bubble action." Rotate the air valve in the opposite direction to reduce airflow or stop it entirely. Closing the air valves when you exit the spa conserves energy and reduces heating costs. If they're left open, the water temperature drops when the colder air outside the spa is injected into the water.

The Diverter Valve is the large dial on top of the acrylic surface that regulates where the water flows in seating areas serviced by the same pump. Rotating the diverter valve in one direction restricts water flow in one section to increase flow in the other. Rotating it all the way in the opposite direction reverses the flow of water. When the diverter valve is positioned in the center, water flow is equally distributed throughout all the seating areas serviced by that pump.

The Waterfall Valve rotates to increase and decrease water flow through the waterfall. Rotating it all the way in one direction reduces the flow of water. Rotating it in the opposite direction increases the water flow. Positioning it in the center moderates the water flow.

*Difficulty Turning Waterfall & Diverter Valves*

*When the pumps are turned on, the pressure in the lines can make rotating the air, waterfall and diverter valves difficult. Turning the pump off releases the pressure so they can be rotated easily. To prevent damage, never force them when pressure makes rotation challenging and never force them beyond their natural stopping point.*

The Drain Valve is used to remove the water from the spa. The drain valve is in the base of the spa near one of the corners. When you fill your spa, make sure it's completely closed, and no water is draining from it. Detailed instructions to drain your spa are on the next page.

## FILLING YOUR SPA
## THE WATER LEVEL

There's a fine line between too much water and not enough. If the water level is too low, air sucked into the plumbing lines can damage the spa. If the water level is too high, lighting and audio components become submerged causing them to fail prematurely. So how do you know when enough is enough, instead of too much or too little?

It's important to pay attention to the water level as bathers enter and exit the spa. One person displaces less water than six people and six children who weigh 50 pounds displace less water than six adults who weigh 150 pounds, but six children may splash out more water than six adults displace. You should expect to add or remove water depending upon use. Every time you exit the spa check the water level and add water if necessary. The water level depends upon the height of the spa. As a general rule, when no one is in the spa there should be approximately 4 inches of water over the filter. If your spa has built-in lighting and audio features, the water should be at least 2 inches below them.

*To ensure your comfort and safety, you should replace your water & filter every three to four months.*

# FILLING YOUR SPA

**Step by Step Instructions for Filling Your Spa**

1. Remove the screws on the access panel. Store the screws and access panel safely aside. In most models, the access panel is on the same side as the topside controls.
2. Check inside the cabinet for visible signs of damage including loose wires or broken pipes. If you see any damage call your dealer for assistance.
3. Hand tighten the plumbing unions and check to be sure the "T Stems" are locked and in the "up" position. If they aren't, pull the "T" all the way up until you hear a "click" and reattach the lock.
4. Remove the filter cover and basket from the filter assembly and store safely aside.
5. Remove the filter(s) and place inside the footwell while the spa fills with water. Never install dry filters in your spa.
6. Place a garden hose inside the empty filter canister. Filling the spa through the filter canister fills the pumps and plumbing lines with water, reducing the risk of an airlock when power is applied.
7. Turn the water on. Check the drain valve to be sure it's properly sealed, and no water is draining from it.
8. When the lowest lines are full, water starts flowing through the jets into the seating area.
9. Remove the garden hose and turn the water off when the water level is approximately 4" above the filter canister.
10. Replace the filter, skimmer basket and filter cover.
11. Check for leaks inside the spa cabinet. If necessary, hand tighten the unions. If the unions are tight and there are leaks inside the cabinet call your local dealer for assistance before applying power to the spa.
12. If there are no visible leaks inside the cabinet, turn the GFCI "on."
13. Reinstall the cabinet panel.

When the GFCI is turned on, the spa immediately begins priming the pump(s) and performing a series of diagnostic tests, which can take up to 30 minutes.

**Step by Step Instructions for Draining Your Spa**

1. Locate the drain valve on the base frame of your spa.
2. Twist the valve left and right while pulling outward until it extends approximately 1 ½" from the cabinet.
3. Remove the drain cap exposing the threads.
4. Attach the water hose to the drain cap and push the valve in.
5. When the spa is drained, remove the hose, replace the drain cap and push the valve in flush with the frame.

***Water Disposal***

*Heavily treated water can be harmful to the environment. Follow State, Local and Community requirements for disposal of water in your spa. Typically, if the pH & chemical levels are correct, you can drain the water on your lawn provided you take adequate measures to keep the water out of public storm drains and there is no potential of erosion or flooding on surrounding properties.*

# WATER CHEMISTRY

Clean, clear, water is imperative for your health and essential for the health of your spa. Without chemical sanitizers, the warm water is a perfect environment for germs, bacteria and other living organisms. Poor water chemistry not only lets bacteria and viruses spin out of control, but it's also the leading preventable cause of spa malfunction. If you over sanitize, your spa will deteriorate prematurely, but if sanitation is inadequate impurities can accumulate, hindering your spa's performance. Your water chemistry changes continuously and maintaining it is different in every spa and for every spa user.

*The following guidelines have been established for spas by the Association of Pool and Spa Professionals:*

| | |
|---|---|
| pH | 7.2 to 7.8 |
| Free Chlorine | 3.0 to 5.0 ppm |
| Free Bromine | 2.0 to 4.0 ppm |
| Total Alkalinity | 80 to 120 ppm |
| Calcium Hardness | 150 to 250 ppm |

*Never mix Bromine, Chlorine, or any other chemical sanitizers!*

*The primary considerations in maintaining your water chemistry are:*

- *The base water quality.*
- *The number of gallons of water in the spa.*
- *The number of people using the spa.*
- *The number of hours the spa is in use.*

*In short, more people, more often, for more time requires more sanitizer.*

Test your water twice a week whether you've used your spa or not. Regular testing lets you make adjustments before your water chemistry is out of control. When it comes to chemicals, more isn't always better. Adding chemicals changes the pH and fluctuating pH levels change how chemicals react. Once the water reaches its chemical saturation point draining your spa and starting over may be your only option.

# WATER CHEMISTRY

### OzOne GeneratOrs

Ozone generators do not replace chemical sanitizers, but they do reduce your consumption. Ozone breaks down dissolved solids and increases the oxygen in the water, making chemical sanitizers more efficient and making it easier for you to maintain proper water chemistry.

### UV Sanitizers

One of only four water sanitation methods approved by the FDA, UV-C light waves alter the DNA & RNA of water borne bacteria, viruses and micro-organisms while eliminating chlorine by products that lead to red eyes, skin irritation and respiratory issues. UV sanitation doesn't eliminate chemicals, but it can reduce chemical consumption for some users by as much as 90%.

### ChlOrine GeneratOrs

Spas equipped with an optional chlorine generator convert salt into chlorine instead of bromine or other chemicals to sanitize the water. Salt and water levels must be consistently monitored to prevent corrosion that occurs if the salt level is excessive or the spread of bacteria if the salt level is inadequate.

## BREAKING DOWN THE BASICS

Each step of a water maintenance program is dependent upon properly adjusting levels in the previous steps to within the recommended ranges. The omission of any step or failure to adjust to recommended ranges can damage the spa and cause discomfort for bathers. Always follow the instructions on the label when adding chemicals or using test strips. Never touch the end of the test strip that's immersed in water, as it may alter your results.

### Step 1.) balaNCING total alkalINIty (ta)

*The recommended total alkalinity level is between 80 and 120 ppm.* The Total Alkalinity (TA) is the measure of the water's resistance to changes in the pH. TA is like a tether that holds the pH in place. If the TA is low, the pH level fluctuates quickly, easily, and significantly. Low TA can be corrected with pH increaser. If the TA is high, the pH level is elevated. High Total Alkalinity levels can be adjusted with pH decreaser. When the Total Alkalinity is within the recommended range, proceed to the next step.

### Step 2.) balaNCING CalCIum hardNess (Ch)

*The recommended calcium hardness level is between 150-250 ppm.* Calcium Hardness is a measurement of the total dissolved calcium in the water. Calcium helps control the corrosive nature of the water. Calcium-low (CL) water, commonly called "soft" water, is highly corrosive and may stain the acrylic surface. If your water passes through a water softener, you should bypass it when filling your spa. Calcium-high (CH) water, commonly called "hard" water, causes scaling on the spa and the components. Calcium hardness can usually be corrected with a mixture of 75% "hard" water and 25% "soft" water. If "soft" water is not available, add a stain and scale inhibitor according to the label instructions. Once the CH is balanced, it usually remains stable and shouldn't change when small quantities of water are added. When the Calcium Hardness is within the recommended range, proceed to the next step.

### Step 3.) balaNCING the ph

*While pH levels between 7.2 and 7.8 are acceptable, the ideal range for bather comfort is 7.4 to 7.6.* Maintaining pH within the acceptable range is imperative for the efficiency of sanitizers, the comfort of bathers, and the prevention of equipment deterioration. Problems become proportionately more severe the further the pH moves outside the acceptable range. When the pH level falls below 7, sanitizer will dissipate rapidly, the water may become irritating to users, and the spa equipment may corrode. The pH can be increased with pH/ Alkalinity Up. If the pH level is too high, the sanitizer is less effective, scale may form on the surface and components, the water may become cloudy and pores in the filter cartridge will become clogged, obstructing water flow. Decrease the pH with pH/Alkalinity Down. If pH up or down is added to the water, wait two hours before testing the pH levels again. Checking the pH level on a weekly basis is essential. When the pH is within the recommended range, proceed to the final step.

### Step 4.) maINtaINING the SaNItIzer levels

*Sanitizer levels vary, depending upon the sanitizer you've chosen. Read and follow the instructions on the package.* Sanitizers kill algae, bacteria, and viruses while preventing the growth of unwanted organisms in the spa. If sanitizer levels are too high, it may irritate the skin, lungs, and eyes. Always maintain the sanitizer level in your spa at the recommended levels specified for each type of sanitizer. You should check your sanitizer and pH levels before each use and at least twice each week even if the spa is not in use.

## BASE WATER QUALITY

What's in your water? The answer is different for just about everyone. Water provided by public utility systems must meet strict standards and undergo chemical treatment before it flows through your faucets. Even though quality standards are similar regardless of where you live, the treatment required to meet that standard - and the residual chemicals that remain in your water after it's treated - can vary greatly. Water flowing from faucets in Washington State is different than the water flowing from faucets in Oregon, and Washington DC. Water delivered to a faucet directly from a well is untreated and water that passes through a softening system is treated, but the treatment makes it unsuitable for filling a spa. Whether your water is treated or unfiltered, all water delivers trace amounts of something that can affect the performance of your spa.

*Never fill your spa with hot water.*
*Never fill your spa with water that has passed through a water softener.*
*Filling your spa with well water is not recommended.* Well water often has higher mineral, metal and bacterial content that can damage the spa components and make it difficult to balance and maintain your water chemistry. Get professional assistance if you're filling your spa with well water.

# WATER CHEMISTRY

**WARNING!**

Handle spa chemicals with care!

- Risk of chemical reaction and noxious fumes.
- Never mix chemicals.
- Read and follow the instructions on the label.
- Always wear safety goggles and gloves.
- Do not enter the spa if chemical levels exceed the recommended levels.

*Do not use tri-chlor chlorine, bromo-chlor-dimethyl-hydantoin (BCDMH), compressed bromine or chlorine tablets, acid or any sanitizer not recommended by your dealer.*

**Step by Step Instructions to Add Chemicals to Your Spa**

1. The water temperature must be at least 80ºF (27ºC) when adding chemicals to prevent damage to the acrylic surface.
2. Fill a large bucket (minimum 2-gallon capacity) with warm water from the spa. Use care not to splash chemicals onto the spa cabinet, or the acrylic surface of the spa.
3. Carefully measure the recommended amount of the first chemical following the instructions on the label. Replace the lid on the chemical container.
4. Thoroughly mix the chemical with warm water in the bucket.
5. Press the Primary Pump button to turn the pump on high speed.
6. With the pump running at high speed, slowly pour the bucket of warm water and chemicals into the spa near the filter assembly.
7. Repeat this procedure with each new chemical added to the water.
8. After adding all of the chemicals run the pumps at high speed for ten minutes with the cover off.
9. After 10 minutes, reduce the pump speed to low for one full cycle.
10. Replace and lock the cover.

## FILTER CARE AND REPLACEMENT

Filters catch small particulates like hair, lotion, and body oil. Filters are made of compressed fibers that break down over time and become saturated with dirt and oil, contaminants remain in the water restricting flow, which causes unnecessary strain on the pumps. Your filters should cleaned when flow from the jets is reduced and the water is hazy or discolored. Cleaning dirty filters may not remove all of the dirt, body oil, and bacteria. Depending upon use and bather load, the manufacturer recommends replacing your filters every three months. Replacement filters can be purchased from your dealer.

**Step by Step Instructions to Clean Your Filters**

1. Turn the GFCI "off," remove the filter cover, basket, and filter.
2. With a high-pressure spray nozzle on your garden hose, rinse between each pleat.
3. Allow the filter to dry completely .
4. Brush between each pleat with a fine brush. Never use a wire brush!
5. Place the filter in a bucket of water or inside the spa until it's saturated.
6. Replace the filter and reassemble the filter assembly.

Never put your filter in the dishwasher. Never put a dry filter in the filter in your spa.

## CHEMICAL SAFETY REMINDERS

- Wash your hands after handling chemicals.
- In case of accidental contact or ingestion, follow the emergency advice on the product label. If a doctor visit is needed, take chemical containers with you.
- Clean up spilled chemicals immediately with a water hose. Saturate the surrounding area thoroughly, especially areas used by children and pets to ensure safety.
- Never use a vacuum to clean up chemical spills.
- Keep chemicals in their original container with the lid tightly closed when not in use.
- Keep chemicals away from children and pets.
- Store chemicals in a cool, dry, well-ventilated place. Do not expose to extreme temperatures or bright light.
- Follow local laws when disposing of the water in your spa. Never allow the water drained from your spa to run into public water sources.
- Never smoke when handling chemicals.
- Do not store chemicals inside the spa cabinet
- Do not add chemicals when bathers are inside the spa. Inhaling fumes or contact with your eyes, nose or mouth is very dangerous.
- Never use swimming pool chemicals, muriatic acid, or household bleach in your spa.

## TROUBLESHOOTING WATER CHEMISTRY

| Problem | Could be Caused By | Could be Solved By |
|---|---|---|
| Water Will Not Balance | Well, untreated, softened, or old water | Seek Local Professional assistance. The manufacturer does not recommend filling the spa with well, untreated or softened water. |
| Cloudy Water | Dirty filter | Replace filter |
| | Excessive/suspended organic matter | Clean/replace filter, add shock, run jets |
| | Bacteria inside cover dripping into water | Spray cover with medium pressure hose, allow to dry |
| | Improper sanitization | Add sanitizer |
| | Hard water | Add scale preventative or soft water until hardness is 80-150 ppm |
| | Alkalinity too high | Add pH reducer, adjust total alkalinity to 80-150 ppm |
| | pH too high | Add pH reducer, adjust pH to 7.2-7.6 ppm |
| | End of water life / calcium pH imbalance | Drain & refill spa, replace filter |
| Green or Brown Water | Excessive metal /algae | Add metal sequestering agent |
| Excessive Foam | Oil, cosmetics and/or detergent | Add defoamer<br>Clean or replace filter<br>Run extra rinse cycle when washing swim wear |
| | Soft water | Add Calcium increaser until hardness is 150-280 ppm |
| Water has Bad Smell | Excessive organic matter - bacteria growth | Add shock |
| | Improperly sanitized | Add sanitizer |
| | Low pH | Adjust pH |
| | Chloramines | Add oxidizing shock |
| Smells Musty | Bacteria growth | Add shock |
| Ring Around Spa | Build up of oil & dirt | Wipe surface with cloth, drain and refill spa |
| Algae | High pH / leaving cover off | Add pH reducer |
| | Low sanitizer level | Add shock & sanitizer |
| Eye, Skin Irritation and/or Rash | Improper sanitation | Test water. Add shock & sanitizer as needed |
| | Combined chlorine fell when adding water | Correct chlorine levels |
| | Too Much Chlorine | Drain several inches of water & replace with fresh water |
| | Dirty filter or pH imbalance | Adjust pH to 7.2-7.6 ppm, clean or replace filter |
| Stains on Acrylic Surface | High alkalinity or low pH | Adjust pH to7.2-7.2 ppm, adjust alkalinity to 80-150 ppm |
| | High mineral content | Use stain & scale reducer |
| | High metal content | Use metal sequestering agent |
| Scale Build Up | High calcium levels, high pH, high alkalinity | Drain partially, adjust pH to 7.2-7.6 ppm, adjust alkalinity to 80-150 ppm; Use stain and scale preventative |

## WATER CHEMISTRY TEST RESULTS LOG

*Recording your results here helps you monitor changes and is a valuable diagnostic tool if you need assistance with your water chemistry.*

| Test | Recommended Range | Your Results |
|---|---|---|
| Free Chlorine ppm | 1-3 | |
| Total Chlorine ppm | 1-3 | |
| Alkalinity ppm | 80-120 | |
| pH | 7.2-7.8 | |
| Total Hardness ppm | 150-250 | |
| Normal Use | Heavy Use | **Light Use** |

| Test | Recommended Range | Your Results |
|---|---|---|
| Free Chlorine ppm | 1-3 | |
| Total Chlorine ppm | 1-3 | |
| Alkalinity ppm | 80-120 | |
| pH | 7.2-7.8 | |
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| pH | 7.2-7.8 | |
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| Alkalinity ppm | 80-120 | |
| pH | 7.2-7.8 | |
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| Alkalinity ppm | 80-120 | |
| pH | 7.2-7.8 | |
| Total Hardness ppm | 150-250 | |
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| Test | Recommended Range | Your Results |
|---|---|---|
| Free Chlorine ppm | 1-3 | |
| Total Chlorine ppm | 1-3 | |
| Alkalinity ppm | 80-120 | |
| pH | 7.2-7.8 | |
| Total Hardness ppm | 150-250 | |
| Normal Use | Heavy Use | **Light Use** |

| Test | Recommended Range | Your Results |
|---|---|---|
| Free Chlorine ppm | 1-3 | |
| Total Chlorine ppm | 1-3 | |
| Alkalinity ppm | 80-120 | |
| pH | 7.2-7.8 | |
| Total Hardness ppm | 150-250 | |
| Normal Use | Heavy Use | **Light Use** |

# CARING FOR YOUR SPA

Caring for the Acrylic Surface

Your spa was cast from Lucite® Acrylic is durable and resilient. The surface is dirt and stain resistant, requiring very little care. When needed, wipe the surface with warm water and a soft cloth. Residue from household cleaners and soapy detergents will dull the shine. Never use abrasive, ammonia, chlorine or citrus based cleaners which can mar the finish and may react negatively with the chemicals used to maintain water chemistry.

Caring for the Cabinet Panels

Your spa cabinet is virtually maintenance free. You never need to wax, paint or seal the cabinet. When necessary, rinse the cabinet with a water hose with a moderate pressure nozzle. Remove stubborn dirt rub with a damp, soft cloth. Never use abrasive cleaners or a high- pressure hose which may scar the cabinet.

Caring for the Pillows

Comfort foam pillow cores are coated in water-resistant vinyl. Prolonged contact with chemical sanitizers will damage the vinyl coating. To prevent premature deterioration and discoloration, wipe chemical residue off periodically with clear water and a soft cloth. If desired, wipe the surface with vinyl protectant. Avoid oil or alcohol-based vinyl protectors which can damage the pillow and adversely affect water chemistry. If you're not using your spa for a while, dry your pillows with a soft towel and store them in a cool, dry place. Foam cores will retain water if the vinyl coating is damaged. Contact your dealer for replacement pillows.

Caring for the Jets

Many of the larger jets in your spa can be rotated to adjust the flow of water. Turn the outer ring clockwise to increase flow, counterclockwise to decrease it or stop the flow entirely. Open all jets when you exit your spa to release pressure in the lines that can damage your spa. Removing mineral deposits that accumulate over time can restore the speed of spinning jets. With the GFCI "off", rotate the outside of the jet counterclockwise until it reaches its natural "stop". Continue turning and pull outward gently to remove the jet. Place jets in a bucket of equal parts water and white vinegar overnight. Rinse with warm water. Remove stubborn debris with a soft bristle brush. Do not use steel wool or a wire brush. When clean, place jet inside housing, tap gently to engage in place and rotate in a clockwise direction until it's securely in place. If you find heavy calcium deposits on your jets, have your water tested. If the back of a jet is damaged, contact your dealer for a replacement.

Caring for the Lights

Do not attempt to remove the lens cover on the underwater light, which is permanently installed. When the spa has been drained, wipe the light lens with a soft cloth. If the other side needs to be cleaned, remove the cabinet panel, remove the bulb from the lamp holder and wipe with a glass cleaner and soft, lint-free cloth. Replace the bulb and make sure light works before reinstalling the cabinet panel. Contact your dealer if your bulb needs to be replaced. Never attempt to clean the back side of the perimeter lighting lens covers.

Caring for Audio/Video Systems

If your spa is equipped with built-in audio or video, always keep the water level below your speakers; they're water resistant but are not designed to be submerged. Wipe chemical residue off with a soft cloth to prevent discoloration. The sub-woofer is enclosed in the spa cabinet and does not require regular maintenance. Use your device to play your selection and control the volume through your speakers before entering your spa. For your safety and to protect your device, place your device inside the docking station and close the door.

Never place your MP3 player or any other electronic devices that are plugged into an electrical outlet within 5 ft (1.5m) of your spa. Never wear headphones or handle audio/video devices from inside the spa.

Caring for the Spa Cover

The foam cores in your spa cover are designed to protect your spa from the elements, reduce heat loss, keep unwanted debris out of the spa, and to prevent evaporation. You should clean the vinyl with a small amount of mild dish soap diluted in warm water and a soft sponge 3 or 4 times a year. Allow to dry and wipe with an oil-free, non-alcohol based vinyl protector. Many vinyl protectors are oil based and should be avoided. Using oil-based products will adversely affect water clarity and chemistry which can be difficult to correct. Using alcohol or chlorine-based cleaning products will cause the stitching to deteriorate and damage the UV inhibitors built into the vinyl. The locking tie downs are not designed to keep the cover in place in heavy winds. You should consider using wind straps to stabilize the cover and protect the spa. Use the handles to remove and replace the cover. The cover is sturdy but should never be dragged and is not designed to hold heavy weight loads. Heavy snow loads should be brushed off with a clean soft bristle broom. Never stand on or allow children or pets on the spa cover. When the spa is not in use, the cover should be locked in place with the tie downs.

Caring for the spa in cold weather

Your spa is well insulated to make it economical to operate even in the coldest climate. As long as its full of water and power is supplied, it will function in January just as it did in July. Keeping your spa fully operational at all times is the best way to protect it from damage that can occur during cold weather. The manufacturer does not recommend draining your spa and disconnecting the power supply in the winter. If you choose to shut your spa down for winter you are encouraged to hire a professional to winterize your spa safely. ALL of the water must be removed from the filter housing, pumps, heater, jets and plumbing lines. Simply draining the water as you would for normal maintenance will not provide adequate protection from freezing.

# Caring for Your Spa

Step by Step Instructions to Safely Winterize your Spa

1. Disconnect the spa from the electrical supply. 115V SPA: Unplug from the electrical outlet. 240V SPAS: Turn the GFCI off.
2. Follow the instructions to drain your spa and properly dispose of the water.
3. When the spa is empty, drain the water from the heater, each pump by loosening the plumbing unions on both sides.
4. Remove the filter cover, basket, and filter from the spa. With a wet-dry vacuum set to blow, not vacuum, put the hose inside the filter canister and blow all of the water out of the filter canister. DO NOT REINSTALL WET FILTER!
5. Place the hose over each suction fitting for 30 seconds to blow out water in the suction lines.
6. Open all of the jets. Moving in a clockwise direction and starting at the top of each seat working down, blow each jet until all of the water is removed. Repeat this process at least twice, moving all the way around the spa from the top to the bottom of each seat until all of the water is removed.
7. Vacuum all standing water in the seats, footwell, and inside the spa cabinet.
8. Clean the surface thoroughly with a soft cloth and wipe down until completely dry.
9. Replace the drain cap, close the drain, and tighten the plumbing unions on both sides of each component.
10. Allow the cabinet to air dry before replacing the cabinet panel.
11. Replace and lock the cover, securing it in place. Cover the spa to protect it from harsh weather and debris.

* The manufacturer does not recommend using antifreeze which may damage your spa. Even with thorough flushing, residual antifreeze may irritate skin and eyes and make water chemistry difficult to balance when the spa is refilled.

** When the spa is empty, o-rings and seals dry out. After filling, inspect plumbing unions for leaks, reseat and/or replace damaged seals.

*System Failure During Freezing Temperatures*

*If you experience system failure and the spa is exposed to freezing temperatures, your spa may function normally after you manually turn the GFCI "off" for 30 minutes before turning it back on again. If that fails, call your dealer. If the system failure occurs after normal business hours and your pumps will not circulate the water, you should place a low wattage space heater inside the cabinet near the spa equipment to help prevent freezing. To avoid the risk of fire or injury, do not leave the spa unattended when the heater is inside the cabinet. If you leave home, turn the heater off.*

## SPA TROUBLESHOOTING GUIDE

THE FIRST STEP IN THE TROUBLESHOOTING PROCESS IS TO CHECK THE TOPSIDE CONTROLS FOR DIAGNOSTIC MESSAGES.
If you do not see the solution to your problem, please call your local dealer for assistance.

Always turn the GFCI "off" before servicing or draining your spa.

| Problem | Might be Caused by | Might be Corrected by |
|---|---|---|
| LED Display is blank | Power is off or fuse is blown | Reset GFCI and Main Service. Replace blown fuses |
| Spa Will Not Power Off | Spa is heating or filtering | Normal function of spa. Lower temperature settings |
| | Spa is filtering | Normal function of spa |
| Spa Leaking | Loose unions | Hand tighten unions |
| GFCI Tripping | Improper wiring | Get Electrician to check neutral wiring connections at GFCI |
| Pump(s) Not Working | Air Lock | Bleed the pump(s) |
| | Pump Cycle has ended | Press button to turn pump on |
| | "T Stems" Closed | "T Stems" locked in up position |
| | Operating Mode | Check to be sure spa is in Standard or Ready Mode not Sleep or Economy Mode |
| | Fuse blown | Replace fuse |
| | Connection to pack | Confirm pump is securely connected inside pack |
| Pump(s) run hot | High ambient temperature | Remove cabinet panel temporarily to allow cooler air to circulate inside cabinet. |
| | Flow restricted | Remove debris from filter basket and suction valves; "T Stems" locked in up position. |
| Pump / Jets Surge | Water level too low | Add water |
| | Blockage or restriction | Empty filter basket and clean suction drain covers. Make sure "T Stems" are up. |
| No or Low Heat | Low temperature setting | Normal function of spa, increase temperature setting |
| | Operating Mode | Check to be sure the spa is not in Economy, Sleep, Rest Mode or Low Range |
| | Temperature Setting | Check LED display to see if Heater is illuminated |
| | Breaker(s) off | Reset GFCI and Main Breaker |
| | Dirty filter | Change filter |
| | Air lock or closed "T Stem" | Make sure "T Stems" are up and pumps are not air locked |
| | Improper line voltage | Have an electrician check voltage |
| Heats but not High Enough | Low temperature setting | Increase temperature setting |
| | Operating Mode | Check to be sure the spa is not in Economy, Sleep, Rest Mode or Low Range |
| | Dirty filter | Change filter |
| | Spa cover shifted | Reposition spa cover |
| Over Heat Message on LED | Filtration settings | Reduce number and duration of filtration cycles |
| | High ambient temperature | Temporarily remove cover and/or add cold water |
| | | Remove cabinet panel temporarily to allow cooler air to circulate inside cabinet. |
| Lights Don't Work | Bulb or fuse burned out | Replace bulb or fuse |
| | Loose, dirty connection | Check light connections |
| Jets Don't Work | Air lock in pump(s) | Bleed pump(s) |
| | Slice valve(s) closed | Open slice valves |
| | Diverter valve closed | Rotate diverter until desired pressure is achieved |
| | Jet Closed | Rotate outer rim of jet clockwise to open |
| | Debris obstructing flow | Remove jet, clear debris |
| Rotating jets don't rotate | Debris or mineral build-up | Remove debris, soak in 50/50 water & vinegar solution to remove mineral deposits |
| Low Water Flow | Spa heating or filtering | Normal spa function |
| | Diverter valve position | Rotate diverter valve to increase flow |
| | Water level low | Add water to correct level above filter assembly. |
| | Dirty suction covers, filter or basket | Clean or replace filter, remove debris from filter basket & suction drains |
| | Slice valve(s) closed | Pull "T" stems up and lock in the up position. |
| | Improper Line Voltage | Have an electrician check voltage |

# TOPSIDE CONTROL INSTRUCTIONS FOR MULTIPLE PUMP SPAS

## Powering on Your Spa

After filling the spa to the correct level remove the water hose, replace the filter, the filter basket, and filter cover. Turn the GFCI on. Every time the GFCI is powered on, diagnostic tests are performed automatically and a series of messages will be displayed on the topside controls. When diagnostic testing is complete, the spa begins priming mode.

## Pre-Programmed Factory Settings

*Your spa will start in Ready Mode*
*The temperature is pre-programmed to 100ºF (38ºC)*
*The filtration cycle is pre-programmed to run once each day for 2 hours*

### Initial Temperature Display

To display the current pre-programmed temperature setting, press the "Temp" button once. After briefly displaying the pre-programmed temperature setting, the current water temperature will be displayed on your topside controls. The water must circulate through the heater chamber for approximately one minute before the current water temperature is displayed on the topside controls. When the display is flashing, the spa controls are in programming mode. To prevent accidentally changing pre-programmed settings, wait until the display stops flashing before pressing a different button.

### Turning the Jets On and Off

Pump 1 is a two speed pump. Press the "Pump 1" button to operate pump 1 on LOW SPEED. Press the "Pump 1" button a second time to operate on HIGH SPEED. Press the "Pump 1" button a third time to turn it off. If the "Pump 1" button is not pressed to turn it off manually, it will shut down automatically after 20 minutes. Press the "Pump 1" button to turn it back on.
The Ozonator engages when pump 1 is operating on LOW SPEED.

Pump 2 is a single speed pump. Press the "Pump 2" button to turn it on. Press the "Pump 2" button a second time to turn it off. If the "Pump 2" button is not pressed to turn it off manually, it will shut down automatically after 20 minutes. Press the "Pump 2" button to turn it back on.

In spas equipped with 3 pumps, Pump 3 is a single speed pump. Press the "Pump 3" button to turn it on. Press the "Pump 3" button a second time to turn it off. If the "Pump 3" button is not pressed to turn it off manually, it will shut down automatically after 20 minutes. Press the "Pump 3" button to turn it back on.

*If your spa is equipped with a circulation pump, it will run continuously until the water temperature is 1°F above the programmed temperature setting. When at the correct temperature it will turn off and back on every 30 minutes and circulate for 1 minute or to heat the water as needed. The Osonator engages when the circ pump is running.*
*To ensure your safety and for optimal performance, your spa controls will automatically perform maintenance functions and run diagnostic testing. The pump will start automatically on low speed to circulate the water for a few minutes every hour to run a system check. During heating, filtration and diagnostic testing the pump runs on low speed. When the pump starts automatically and operates on low speed to perform these maintenance functions, pressing the pump button will not turn the pump off.*

## Priming Mode

Priming mode safely removes air that may be trapped in the plumbing lines when your spa is filled. The heater is disabled during priming mode to prevent failure. Pumps should be observed one at a time to confirm the pump isn't surging and water is coming from all jets.

### Run Pumps to Purge the Air

Each time your GFCI is turned on, this message is displayed on your topside controls. As soon as the message is displayed on the screen, press the "Pump 1" on button twice to run the pump on high speed. Press the "Pump 2" button once to run the pump on high speed. If your spa has 3 pumps, Press the "Pump 3" button once to run the pump on high speed.
Within 2 minutes water should be flowing from the jets in every seat without any surging from the pumps. If water isn't flowing from all of the jets or if you hear the pumps surging, turn them on and off up to 4 times, which can help prime the pumps. If the pumps aren't primed after turning them on and off 4 times, turn the GFCI off. Make sure the "T Stems" are locked in the UP position, the diverter valves are centered for even distribution of the water, jets without flow are fully rotated to the open position and there isn't any debris in the filter basket or on the suction drain covers. Turn the GFCI on again and repeat the process. If the pumps don't prime on the second attempt, call your dealer for assistance. *A pump that fails to prime should not be left on for more than 2 minutes under any circumstance. The heater will engage when priming mode is complete. If a pump is not properly primed when the heater engages, the spa may overheat causing serious damage.*

## Changing the Water Temperature Settings & Operating Modes

*Press the "Temp" button once to enter programming mode.*
*When the display on the topside control is flashing, the spa is in programming mode.*
*In most cases, pressing the light button saves the changes.*
*To prevent accidentally changing programmed settings, after pressing one button wait 10 seconds before pressing a different button.*

### Adjusting the Water Temperature Setting

To change the programmed temperature settings, press and release the "Temp" button. While the display is flashing, press and hold the "Temp" button until the desired temperature is reached. To move the display in the opposite direction continue holding the button. When it reaches 104ºF (40ºC) it will automatically begin moving in the opposite direction. Press the light button to save the change and exit programming mode. If the temperature setting is increased, pump 1 will turn on automatically to begin heating the water.

**Dual Temperature Range**


*Pay attention to the direction of the arrow beside the word "Range" when setting and selecting Dual Temperature Ranges.*
The High Range can be programmed to a minimum of 80ºF (27ºC) and a maximum of 104ºF (40ºC)
The Low Range can be programmed to a minimum of 60ºF (16ºC) and a maximum of 99ºF (37ºC)
Freeze protection is active in both ranges.

The spa controls allow you set two independent temperature settings. High Range settings are most commonly used to maintain "Ready to Use" temperature settings and the Low Range setting is most commonly used to "Vacation" water temperature settings. Your spa will maintain the water temperature associated with the range you select.

To set the Dual Temperature Ranges, press the "TEMP" button and the "LIGHT" button once to enter programming mode. When Temp is displayed, press the "TEMP BUTTON" to toggle between the High and Low ranges. To set the High Range, press the "LIGHT BUTTON" when the arrow is pointing UP. To set the Low Range, press the "LIGHT BUTTON" when the arrow is pointing DOWN. While the temperature is flashing on the screen, press and hold the temperature button, releasing it when the desired temperature is displayed. Press the light button to save the change and exit to the main screen.

## UNDERSTANDING OPERATING MODES

Your spa controls are equipped with three operating modes to help you regulate energy consumption and reduce operating costs. How often the spa is used and the ambient temperature will help you determine which mode is best for you.

**Ready Mode**


The water temperature is always maintained.
"Ready" is displayed on the topside controls.

When the spa is in Ready Mode, Pump 1 automatically circulates the water on low speed every half hour to check the water temperature. If heating is required, it will continue circulating to heat and sanitize the water with Ozone.

**Rest Mode**


The water only heats during filtration cycles. When the ambient temperature is low, the water may be too cool for immediate use
"Rest" is displayed on the topside controls.
DO NOT PUT YOUR SPA IN REST MODE WHEN THE AMBIENT TEMPERATURE IS 40ºF (4ºC) OR LOWER!

When the spa is in Rest Mode the water is only heated during filtration cycles only to reduce energy consumption. Setting the filtration cycle to end right before use can be an effective way to reduce energy consumption. The water must circulate for approximately 1 minute before the current temperature can be displayed.

**Ready-In-Rest Mode**


The water only heats during filtration cycles. If the "Pump 1" button is pressed, the water will heat for one hour.

In Ready-In-Rest Mode the spa will operate in Rest Mode, heating only during filtration cycles, unless the "Pump" 1 button is pressed. When the "Pump 1" button is pressed, the system assumes it is in use and the water will circulate on low speed for one hour, heating the water if necessary. If the programmed temperature setting isn't reached within the hour, the pump and heater automatically shut off.

### Changing Operating Modes

To change operating modes, press the "Temp", press the "Light" button twice. When "MODE" appears on the topside display, press the "Temp" button to toggle between operating modes. When the desired mode is displayed, press the "Light" button to save your selection. If the water temperature falls to 42ºF (6ºC), the spa turns on automatically and runs for 4 minutes after it reaches 46ºF (8ºC) to prevent freezing. Depending upon weather conditions, your spa may run for extended periods if not continuously.

### Setting the Time of Day

Setting the time of day establishes when filtration cycles and other functions are performed. If no time of day is stored in the memory, "SET TIME" will flash on the display. When the power to the spa is interrupted the time will not be saved.

To set the time of day, press the "Temp" button, press the "Light" button three times. When "TIME" appears on the topside display press and hold the "Temp" button until the correct hour is displayed. Press the "Light" button to save the hour and begin setting the MINUTES. When the minutes flash on the display, press and hold the "Temp" button until the correct time is displayed. Press the "Light" button to save your selection.

### Flip the Display

The message on the topside display can be inverted for easy reading both inside and outside the spa.

To invert the display, press the "Temp" button once, then press the "Light" button four times. When "FLIP" is displayed press the "Temp" button to invert the display. Press the "Light" button to save the change.

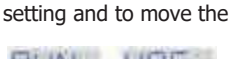
### Programming Filtration Cycle Settings

*Your spa is pre-programmed to filter once each day for 2 hours.*
*When the filtration cycle begins, all pumps will turn on and operate on HIGH SPEED to purge the lines and will shut down automatically.*
*When purging is complete, Pump 1 will start on LOW SPEED and will automatically shut down when filtration cycle is complete.*
*During filtration cycles, the water circulates to remove debris and small particulates.*
*Increasing filtration will not eliminate or reduce the need for chemical sanitization.*

How long your water needs to filter varies on a number of factors including how often the spa is used, for how long, and by how many people. Under normal use, adequate filtration should be achieved in two hours. If the spa is used for longer periods by more bathers it may be necessary to increase the duration of your filtration cycle but it should never exceed 4 hours. Excessive filtration may cause overheating. You can program what time the filtration cycle will begin and how long it will last. Settings can be adjusted in 15 minute intervals.

## Setting the Filter Cycle Start Time

Pay close attention to "A" or "P" in the bottom right corner of the display. The filtration cycle will run in the AM if "A" is displayed or PM if "P" is displayed.
To program what time filtration cycles begin, press the "Temp" button, then press the "Light" button seven times. When "FLTR" is displayed on the topside controls press the "Temp" button. While "BEGN" is flashing on the display, press and hold the "Temp" button until the hour you want the filtration cycle to start is displayed. Press the "Light" button to save the hour and move to minutes. Press and hold the "Temp" button until the desired 1/4 hour is displayed. Press the "Light" button to save the setting and to move the duration setting.

## Setting the Filter Cycle Duration 

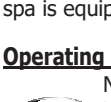
To program the length of the filter cycle, when "RUN HRS" is displayed press and hold the "Temp" button until the desired number of hours is displayed. Press the "Light" button to save the selection and move to minutes. Press and hold the "Temp" button until the correct 1/4 hour is displayed. Press the "Light" button to save the selection. The time of day the filtration cycle will end will be displayed.

## Turning the Lights On and Off

| Press Light Button | Turns On | Press Light Button | Turns Off |
|---|---|---|---|
| Once | Red | Twice | Red |
| 3 Times | Green | 4 Times | Green |
| 5 Times | Blue | 6 Times | Blue |
| 7 Times | All Colors Rotating | 8 Times | All Lights |

If the light button is not pressed to turn the lights off, they will turn off automatically after 1 hour. Press the "Light" button to turn the lights back on. If your spa is equipped with optional perimeter lighting, the perimeter lighting feature works in tandem with the underwater light.

## Operating the Audio Components



No matter how your device connects to your spa, the built in speakers must be turned on to hear your selection playing through them. Pressing the "Stereo" or "Speakers" button once turns the built in audio components on. Pressing it a second time turns them off. If the button is not pressed to turn them off, they will turn off automatically after 2 hours. Press the button again to turn them back on. Use your device to make selections, play, pause, and control the volume. If you can't hear your selection, make sure the audio jack is firmly connected, that your device isn't muted or paused, and that the volume setting isn't too low.

If your device connects with an audio jack, press the "Speaker" button on the topside control to turn the speakers on. The door on the Mp3 Cargo Bay slides up and down to open and close. The audio cable is inside the Mp3 Cargo Bay. Connect your device into the audio jack, press the "Stereo" or "Speaker" button on the topside control to turn on the speakers. Press play on your device. Use your Mp3 player to select, play, pause and to control the volume. Press the "Speaker" button on your topside controls to turn the device off when you exit the spa.

If your device connects with Bluetooth, press the "Speaker" button on the topside control to turn the speakers on. The door on the Mp3 Cargo Bay slides up and down to open and close. The Bluetooth receiver is inside the Mp3 Cargo Bay located on the same side as your topside controls. Unplug the Bluetooth receiver and plug it back in. When the blue light is blinking on the Bluetooth receiver, open the Bluetooth settings on your device to search for available devices. When your spa is located, follow your device manufacturer's instructions to allow the connection to your spa. The blinking blue light on the receiver will be replaced with a solid blue light when the connection is established. If a pairing code is required, enter "0000". Press the "Speaker" button on your topside controls to turn the device off when you exit the spa.

*For your safety and to protect your device, your Mp3 player should always be stored in the Mp3 Cargo Bay. When you remove your Mp3 player from the Cargo Bay, always press the "Stereo" button to turn the speakers off. Leaving the audio components on causes overheating that will permanently damage the audio components. Damage to the audio components that occurs because the components were not turned off is not covered under the warranty.*

# TOPSIDE CONTROL QUICK START

*Refer to the topside control instructions for a detailed explanation of your spa control features & functions.*

**TO ENTER PROGRAMMING MENUS:**

Press and release the "Temp" button

Press and release the "Light Button" to move between programming menus.

| Press & Release | Press | This many times | Appears on the Display |
|---|---|---|---|

**To adjust the temperature setting**

When set temperature flashes on display, press & hold or press & release the "TEMP" button repeatedly until the desired temperature is displayed. Press the "LIGHT" button to exit. The minimum temperature setting is 60°F, the maximum temperature setting is 104°F.

**To set dual temperature ranges** — Once

When TEMP is on the display, press the "TEMP" button to move between High and Low Ranges. When the desired range is displayed press the "LIGHT" button to save and exit to the main menu. The arrow points up when the High Range is selected. The high range temperature can be set between 80°F to 104°F (20 to 40° C). The arrow points down when the Low Range is selected. The low range temperature can be set between 50°F to 99°F (16 to 37°C).

**To select the heat mode** — Twice

When MODE is on the display, press the "TEMP" button to move between Rest Mode and Ready Mode. The water temperature is maintained in Ready Mode. In Rest Mode it only heats during filtration cycles. When desired mode is displayed press the "LIGHT" button to select and exit to the main menu.

**To set the time of day** — 3 Times

When TIME is on the display, press & hold the "TEMP" button until the correct hour is displayed. Press the "LIGHT" button to move to the MINUTES. When the minutes flash, press and hold the "TEMP" button until the correct minutes are displayed. Press "LIGHT" button to save the time and exit to the main menu. Military time can be set in the preferences menu.

**To flip your display** — 4 Times

When FLIP is on the display, press the TEMP button to flip your display. Press the LIGHT button to exit to the main menu.

**To restrict operation** — 5 Times

To prevent changes to the temperature setting or to lock the control panel, when LOCK is on the display press the "TEMP" button. Press the "TEMP" button to toggle between TEMP and LOCK and OFF or ON, press the LIGHT button to save changes and exit to the main menu. Press the LIGHT button to save and exit to the main menu. To unlock. Press the LIGHT button twice while pressing and holding the TEMP button. Unlocking the controls is successful when UNLK is displayed on the LED, followed by the main menu.

**To put your spa on standby** — 6 Times

When HOLD flashes on the display, press the "TEMP" button to put the spa on standby for up to 1 hour. Press the "LIGHT" button to exit standby and return to the main menu. The timer will countdown the time remaining and will exit standby automatically after 1 hour.

**To set the 1st filtration cycle** — 7 Times

To select the start time and duration of your filtration cycle, when FLTR is on the display press and hold the "TEMP" button, releasing when the HOUR you want filtration to begin is displayed, paying close attention to the "A" (AM) or "P" (PM) on the display. Press the "LIGHT" button to move to the minutes field. Press the "TEMP" button to select 0, 15, 30, or 45 minutes and press the "LIGHT" button. The time of day the filtration cycle will END will be displayed. Press the "LIGHT" button to save the setting and exit to the main menu. I

**To set the 2nd filtration cycle** — 8 Times

If desired, repeat the process for the second filtration cycle. The filtration cycle will revert to factory settings if your selection is not saved. Excessive filtration causes overheating which will damage your spa. Never set your spa for continuous filtration.

**To set your personal preferences** — 9 Times

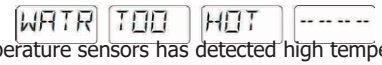
Press the TEMP key to move between °F and °C. Press the LIGHT button to set your preference when it is displayed.
Press the TEMP key to move between a 24 hour and 12 hour clock. Press the LIGHT button to set your preference when it is displayed.
Press the TEMP key to move between YES or NO to set reminders. Press the LIGHT button to set your preference when it is displayed.

# TROUBLESHOOTING TOPSIDE CONTROL ERROR MESSAGES

## General Messages

Too Cold - Freeze Protection


A potential freeze condition has been detected and all pumps have been activated. Pumps will stay on for at least 4 minutes after the potential freeze condition has ended. Pumps may turn on and off automatically during freeze protection.

Water is too Hot 


One of the temperature sensors has detected high temperature in the heater chamber and spa functions have been disabled. DO NOT ENTER THE WATER! The probable cause is pumps running excessively or high ambient temperatures. Remove the spa cover and add water allowing the water to cool. Reduce duration of filtration cycle. Operation will resume when the water temperature has fallen.

## Heater Related Messages

Reduced Heater Flow

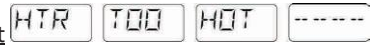

There may not be enough water flow away from the heater. DO NOT ENTER THE WATER! Water temperature readings in the heater chamber are too high. Heater will restart in approximately 1 minute.

Reduced Heater Flow


Not enough flow to carry water away from the heating element and the heater has been disabled. DO NOT ENTER THE WATER! Power off GFCI, make sure slice valves locked in open position, that water level is adequate and remove debris from filter, filter basket and suction drain cover. Press any button to resume operation. If the problem is not resolved, call your dealer for assistance.

Heater may be Dry

There is not enough water in the heater. Add water to the spa if the water level is too low, check to be sure slice valves are locked in the open position, that pumps are primed and jets are open. Whenthe problem is resolved, press any button to resume operation.

Heater is too Hot 


One of the temperature sensors has detected high temperature in the heater chamber and the spa is shut down. DO NOT ENTER THE WATER! Power off GFCI, make sure slice valves locked in open position, that water level is adequate and remove debris from filter, filter basket and suction drain cover. Press any button to resume operation. If the problem is not resolved, call your dealer for assistance.

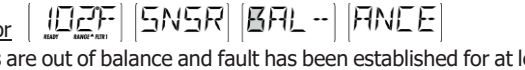
Reset GFCI


When this message appears with another message, the GFCI must be turned off to reset the spa controls. After 10 minutes, turn the GFCI on.

## Sensor Related Messages

Sensor Balance is Poor


Temperature sensors are out of balance by 2 to 3 Degrees. Call your dealer for assistance.

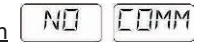
Sensor Balance is Poor 


Temperature sensors are out of balance and fault has been established for at least 1 hour. Call your dealer for assistance

Sensor A or B Failure


Message may read Sensor A or Sensor B. Temperature sensor or sensor circuit has failed. Call your dealer for assistance.

## Miscellaneous Messages

No Communication 


The topside control is not communicating with the spa controls. Call your dealer for assistance.

Pre-Production Software

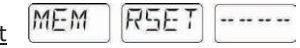

The spa controls is operating with test controls. Call your dealer for assistance.

ºF or ºC replaced by ºT

Spa controls are operating in Test Mode. Call your dealer for assistance.

Memory Failure


When the spa was powered on the system failed the Program Checksum Test. There is a problem with the firmware. Call your dealer for assistance.

Memory Warning - Persistent Memory Reset 


Message appears after system set up change. If this message appears on more than one power up, or it appears after operating normally for a period of time, call your dealer for assistance.

Memory Failure - Clock Error


Call your dealer for assistance.

Configuration Error - Spa will not Power On


Call your dealer for assistance.

GFCI Failure - System could not Test/Trip GFCI


Call your dealer for assistance.

Pump appears to be stuck on

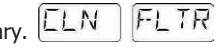

Pump appears to have been stuck ON when the spa was last powered on

DO NOT ENTER THE WATER. Turn the GFCI off and call your dealer for assistance.

If Reminders are Programmed, These Messages will Appear on a Regular Basis Alternating with Current Water Temperature

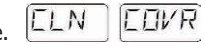
Check pH and adjust if required.


Check sanitizer and adjust if required.


Clean or replace the filter if necessary. 


Test the GFCI.

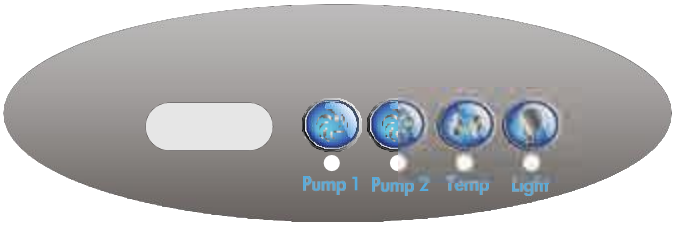

Change water to maintain chemical balance and sanitary conditions.


Clean and condition cover for maximum life. 


Clean and condition cabinet for maximum life.


Change filter to ensure adequate water flow and sanitary conditions.


Install new mineral cartridge to ensure adequate sanitation


POWERING ON YOUR SPA

After filling the spa through the filter assembly to the correct level and removing the water hose, replace the filter, the filter basket assembly and filter cover. Turn the GFCI on. Every time the GFCI is powered on, your spa controls run diagnostic self checks. During diagnostic testing, it is normal for a series of messages to display on your topside controls. When diagnostic self checks are completed, the spa will start in priming mode.

Turning the Jets On and Off

Press the "Pump" button once to turn the pump on. Press the "PUMP" button a second time to turn a single speed pump off or the two-speed pump on high speed. Pressing the "PUMP" button a third time will turn the two-speed pump off. The pump will shut down automatically after 20 minutes. To turn the pump back on, simply press the "PUMP" button. If your spa is equipped with an Ozonator, Ozone will be generated automatically whenever the pump is running on low speed.

To ensure your safety and for optimal performance, your spa automatically performs maintenance functions and diagnostic testing, circulating the water on low speed every thirty minutes to run a system check. Pressing the pump button during heating, filtration and diagnostic testing will not turn the pump off.

*If your spa is equipped with a circulation pump, it will run continuously until the water temperature is 1°F above the programmed temperature setting. When at the correct temperature it will turn off and back on every 30 minutes and circulate for 1 minute or to heat the water as needed. The Osonator engages when the circ pump is running.*

Pre-Programmed Factory Settings

The spa will start in Standard Operating Mode.
The temperature is pre-programmed to 100°F (38ºC)
The minimum programmable temperature is 80ºF (27ºC), the maximum is 104ºF (40ºC)
The Filtration cycle is pre-programmed to run twice each day for two hours.

While the water is heating, the temperature is measured approximately every two minutes. After the spa has been running for 2 minutes, the current water temperature will be displayed on the topside controls. When the water temperature reaches the pre-programmed temperature setting, the pump will automatically turn off. To display the current pre-programmed temperature setting, press the "cool" button once. The current water temperature will flash on the display.

When you press a button, wait 5 seconds before you press a different button
to prevent unintended changes to programmed settings.

Priming Mode

Each time your GFCI is turned on, "PR" is displayed on your topside controls. As soon as "PR" appears on the screen, press the "PUMP" button twice to run the pump on high speed. Within 2 minutes water should be flowing from the jets in every seat without any surging from the pumps. If water isn't flowing from all of the jets or if you hear the pumps surging, turn them on and off up to 4 times, which can help prime the pump. If the pump isn't primed after turning them on and off 4 times, turn the GFCI off. Make sure the "T Stems" are locked in the UP position, the diverter valves are centered for even distribution of the water, jets without flow are fully rotated to the open position and there isn't any debris in the filter basket or on the suction drain covers. Turn the GFCI on again and repeat the process. If the pump doesn't prime on the second attempt, call your dealer for assistance. *A pump that fails to prime should not be left on for more than 2 minutes under any circumstance. The heater will engage when priming mode is complete. If a pump is not properly primed when the heater engages, the spa may overheat causing serious damage.*

Changing the Programmed Temperature Setting

If the display is not flashing when the temperature is adjusted, the changes will not be saved.

To change the programmed temperature setting, press and release the "TEMP" or "WARM" button. While the temperature is flashing on the display, press and hold the "TEMP" or "WARM"button until the new temperature is displayed. To move the display in the opposite direction continue holding the button. When it reaches 104ºF (40ºC) it will automatically begin moving in the opposite direction. After 3 seconds, the display will stop flashing and the current water temperature will be displayed. In models with separate "WARM" & "COOL" buttons, press "WARM" to increase the temperature, "COOL" to decrease it.

Freeze Protection

If the water temperature falls to 44ºF (6ºC) the spa will automatically turn on and will run for 4 minutes after the water temperature reaches 46ºF (8ºC) to prevent freezing. If your spa is in Sleep Mode when the ambient temperature is 40ºF (4ºC) or lower, the water temperature will likely operate in Freeze Protection Mode for extended periods if not continuously.

Setting the Filtration Cycles

Filtration cycles run every 12 hours.

The filtration cycle duration can be set in increments of an hour.

To change the duration of the filter cycles, press and release the "TEMP" or "WARM" button. While the water temperature is flashing on the display press and release the "Pump" button. Press and release the "TEMP" or "WARM" button to move through the filter cycle duration options, from F1 (1 hour filtration cycle) to F8 (8 hour filtration cycle) stopping when the setting you want is displayed. Press the "Jets" button to confirm your selection. Filter cycles can be set for 1, 2, 3, 4, 5, 6, 7, or 8 hours. Never set your filtration cycle to FILC (Continuous Filtration) which can lead to over heating, damaging the components that is not covered under the warranty.

The first filtration cycle will begin after the pumps are primed each time the GFCI spa is turned on. When the filtration cycle begins, the pump will operate on high speed for approximately 1 minute to flush the lines, after which the pump will operate on low speed until the filtration cycle is complete. Filtration cycles run every 12 hours. For example, if the GFCI is powered on at 4:54 and you have selected 2 hour filtration cycles, your filtration cycles will run from 5

to 7 a.m. and again from 5 to 7 p.m. If you want the filtration cycles to run from 3 to 5, you should power on the spa at 2:54.

## UNDERSTANDING OPERATING MODES

Your spa controls are equipped with operating modes to help you regulate energy consumption and reduce operating costs. How often the spa is used and the ambient temperature will help you determine which mode is best for you.

When you press a button, wait 5 seconds before you press a different button
to prevent unintended changes to programmed settings.

To change operating modes, press the "WARM" button. While the display is flashing, press the "LIGHT" button. The current mode will flash on the topside control. To move between modes, press the "WARM" button followed immediately by the "LIGHT" button until the operating mode you want to select is displayed on the topside controls.

Standard Operating Mode

St

The water is heated to maintain your pre-programmed temperature setting.
The current water temperature is displayed on the topside controls.

When your spa is in Standard Operating Mode, your programmed temperature setting is always maintained. If your water temperature falls a few degrees, the pump will automatically begin circulating on low speed to heat the water until the correct temperature is reached

Economy Mode

Ec

The water heats only during filtration cycles.
In Economy Mode the water may be too cool for immediate use.
"EC" is displayed on the topside controls.
DO NOT PUT YOUR SPA IN ECONOMY MODE WHEN THE AMBIENT TEMPERATURE IS 40ºF (4ºC) OR LOWER!

In Economy Mode, the water is only heated during filtration cycles. In moderate weather, setting the filtration cycle to end right before use can be an effective way to reduce energy consumption but in cool weather the water may be too cool for immediate use. When your spa is in Economy Mode, the water temperature and "EC" will flash alternately on the display when the pump is running on low speed, after diagnostic testing, during or after a filtration cycle, or when you press the "WARM" button once. Otherwise, SL is displayed on the topside controls.

Sleep Mode

SL

The water heats to within 20℉ (11ºC) of the programmed temperature setting.
The water ONLY heats during filtration cycles.
"SL" is displayed on the topside controls.
DO NOT PUT YOUR SPA IN SLEEP MODE WHEN THE AMBIENT TEMPERATURE IS 40ºF (4ºC) OR LOWER!

Sleep Mode can significantly reduce energy consumption because the water only heats during filter cycles and stops heating the water when it is 20℉ below the programmed temperature setting. For example, if your pre-programmed temperature setting is 100ºF (38ºC) during the filtration cycle your water will heat to 80ºF (27ºC). If the filtration cycle times out before the water temperature reaches 80ºF (27ºC), the filtration cycle will end regardless of the water temperature. Sleep Mode is ideal when the weather is warm or when the spa will not be in use for a prolonged period of time. When your spa is in Sleep mode, the water temperature and "SL" flash alternately on the display when the pump is running on low speed, after diagnostic testing, during a filtration cycle, or when you press the "WARM" button once. Otherwise, "SL" is displayed on the topside controls.

Freeze Protection

If the water temperature falls to 44ºF (6ºC), the spa will automatically turn on and will run for 4 minutes after the water temperature reaches 46ºF (8ºC) to prevent freezing. If your spa is in Sleep Mode when the ambient temperature is 40ºF (4ºC) or lower, your spa will likely operate in Freeze Protection Mode for extended periods if not continuously.

When you press a button, wait 5 seconds before you press a different button
to prevent unintended changes to programmed settings.

For example, if you only press the "Warm" button, only the temperature changes. If you only press the "Light" button, only the light function changes. But if you press the "Warm" button and immediately press the "Light" button, the operating mode changes. Waiting 5 seconds between pressing the "Warm" and "Light" buttons is adequate time to exit programming mode, preventing unintended changes.

It may be difficult to read the topside display in bright sunlight. Using your hand to shield the direct light will increase visibility.

Turning the Lights On and Off

| Press Light Button | Turns On | Press Light Button | Turns Off |
|---|---|---|---|
| Once | Red | Twice | Red |
| 3 Times | Green | 4 Times | Green |
| 5 Times | Blue | 6 Times | Blue |
| 7 Times | All Colors Rotating | 8 Times | All Lights |

The lights will turn off automatically after 1 hour. Press the "LIGHT" button to turn the lights back on. If your spa is equipped with optional perimeter lighting, the perimeter lighting feature works in tandem with the main light.

Operating the Audio Components

No matter how your device connects to your spa, the built in speakers must be turned on to hear your selection playing through them. There is a rocker switch inside the Mp3 Cargo Bay located on the same side as your topside controls. To turn the built-in speakers on, press the rocker up. To turn them off, press the rocker switch down. Use your device to make selections, play, pause, and control the volume. If you can't hear your selection, make sure the audio jack is firmly connected, that your device isn't muted or paused, and that the volume setting isn't too low. *Press the rocker switch down to turn the speakers off when you exit the spa to prevent overheating, which can permanently damage your audio components.*

If your device connects with an audio jack, the door on the Mp3 Cargo Bay slides up and down to open and close. The audio cable is inside the Mp3 Cargo Bay. Connect your device into the audio jack, press the "Stereo" or "Speaker" button on the topside control to turn on the speakers. Press play on your device. Use your Mp3 player to select, play, pause and control the volume. Press the "Speaker" button on your topside controls to turn the device off when you exit the spa.

If your device connects with Bluetooth The door on the Mp3 Cargo Bay slides up and down to open and close. Press the rocker switch up to turn the speakers on. The Bluetooth receiver is inside the Mp3 Cargo Bay located on the same side as your topside controls. Unplug the Bluetooth receiver and plug it back in. When the blue light is blinking on the Bluetooth receiver, open the Bluetooth settings on your device to search for available devices. When your spa is located, follow your device manufacturer's instructions to allow the connection to your spa. The blinking blue light on the receiver will be replaced with a solid blue light when the connection is established. If a pairing code is required, enter "0000". Press the rocker switch down to turn the device off when you exit the spa.

*For your safety and to protect your device, your Mp3 player should always be stored in the Mp3 Cargo Bay. When you remove your Mp3 player from the Cargo Bay, always press the "Stereo" button to turn the speakers off. Leaving the audio components on causes overheating that will permanently damage the audio components. Damage to the audio components that occurs because the components were not turned off is not covered under the warranty.*

## TROUBLESHOOTING ERROR MESSAGES ON TOPSIDE CONTROL

Many error messages that appear on your topside control can be resolved by resetting your spa controls. To reset your controls, turn your GFCI OFF and back ON after 30 minutes. If the error message is not resolved after resetting your system and following the recommendations in this troubleshooting guide, contact your dealer for assistance.

| Message | Meaning | Action Required |
|---|---|---|
| | No message to display<br>No Power to Spa | Control panel disabled until power is restored. Settings have been preserved. |
| - - | Temperature Unknown | Temperature will be displayed after pump has been running for 2 minutes |
| HH | OVERHEAT - Spa shut down to protect against excessively high water temperature in heater chamber at sensor | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| OH | OVERHEAT - Spa has shut down to protect against high water temperatures in heater chamber at sensor | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| IC | Ice - Potential for freezing | No action required. Pump will automatically activate to prevent freezing |
| SA | Spa shut down - Sensor "A" not working | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| SB | Spa shut down - Sensor "B" not working | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| Sn | Sensors out of balance - Temporary if alternating with water temperature. If flashing by itself, spa is shut down | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| HL | Significant difference between sensors - likely flow problem | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| LF | Persistent Flow Problems - Heater shut down, other functions will run normally | DO NOT ENTER THE WATER! Power off GFCI, make sure "T Stems" are locked in open position, the water level is adequate and remove debris from the filter, filter basket and suction drain cover. Change the filter if dirty. Power on. If not resolved, call your dealer for assistance. |
| dr | Possible low water levels, low flow or air bubbles in heater, spa shut down for 15 minutes | Check water level and refill if necessary. Make sure slice valves are up and locked, remove obstruction from filter basket and suction covers. Press any button to reset. If problem persists, call your dealer for assistance. |
| dy | Inadequate water in heater. Spa automatically shut down. | Check water level and refill if necessary. Make sure slice valves are up and locked, remove obstruction from filter basket and suction covers. Press any button to reset. If problem persists, call your dealer for assistance. |

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